

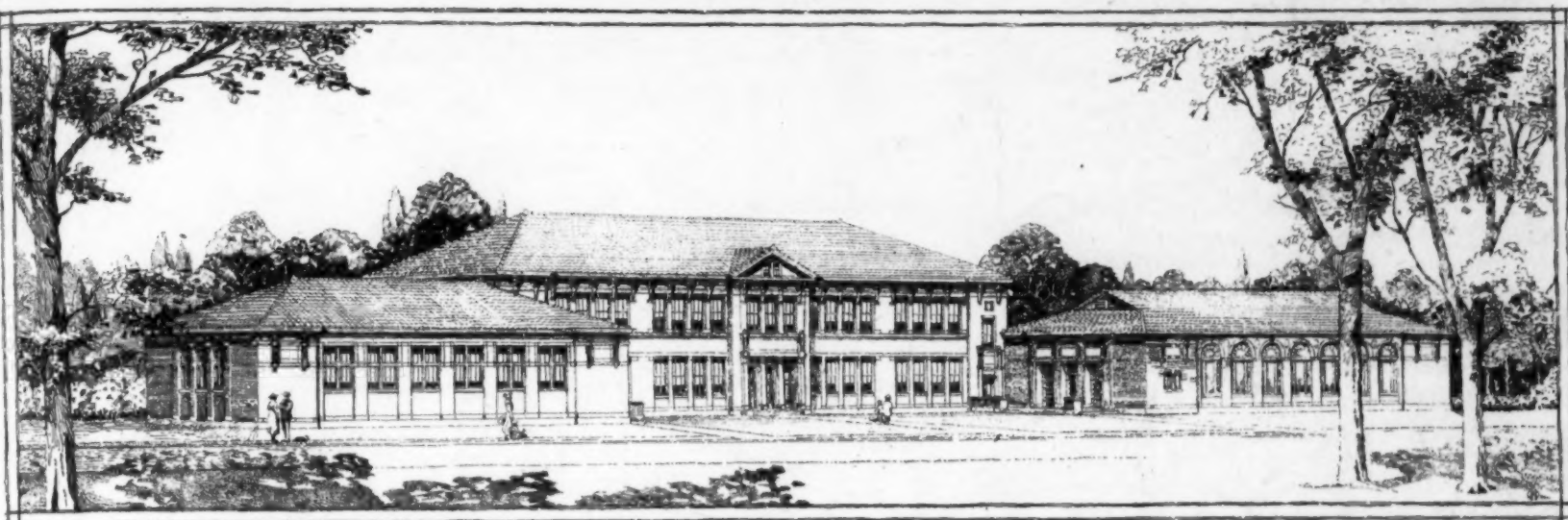
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The Junior High Schools of Richmond, Indiana

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THE SCHOOLS. By Mr. Bentley.

Richmond began to develop its junior high school in 1895. By 1910 it had reached a stage where the work of the 7th and 8th grades was departmentalized and these classes grouped in a building apart from the six lower grades and the four year high school above. At first the subject matter was largely the same as it had been in the older organization but between 1910 and 1915 there was a steady reorganization which introduced into the seventh and eighth grades many of the subjects ordinarily reserved for the high school courses and which brought about a gradual change in methods of teaching from that of the older elementary school to something more nearly approaching that of the secondary school. From 1915 till now the board of education has been planning for more room for the constantly increasing enrollment and has also been looking forward to the adding of the ninth grade to the junior-high-school organization.

In this development from 1895 to the present, the school people of Richmond were feeling their way to a better plan of organization with little in the way of precedent to guide them as the junior-high-school movement of the last few years had hardly begun. Two or three interesting facts can be noted in this connection. The departmentalized upper grades were separated from the lower grades, and it was found that the lower grades were a better social unit for school organization and administration without the presence of the seventh and eighth grades than with them. These upper grades were not attached to the high school organization and experience has shown that a type of school organization has been developed that fits these early adolescent children better than would be pos-

sible were the situation complicated by the presence of the older boys and girls.

These years of experience have made Richmond sure that the reorganization of the seventh and eighth grades should take place apart from both the pupils of the lower grades and of the upper grades as well. They are further convinced, though not by experience, that the ninth grade belongs with the seventh and eighth years, first of all, because of the average age and maturity of the pupils involved and the type of teaching suited to these ages, and also because the three years will make a better administrative unit than the seventh and eighth years alone.

So that when the board of education came to the building problem, the experience of over twenty years had practically settled the question of the type of organization for which to plan. All agreed that the 6-3-3 type was what was best for Richmond. The questions facing the board then were: How large a building, where should it be located, what should it include?

The board decided that provision must be made not only for the present junior-high-school population, but that plans must be drawn that would be capable of expansion to care for the growth of the junior-high-school population in the coming years. It further decided that the location must provide ample play space as well as opportunity for dignified and adequate architectural treatment. The buildings and grounds must be beautiful as well as ample and if possible, must express in appearance the idea of the intermediate school.

For twenty years the boys and girls of the junior high school have been going to the center of the city. It seemed more desirable, particularly for children of this age, to send them away from the business district rather than toward it.

This consideration coupled with the high cost of an adequate site centrally located, led the board to look for a location on the edge of town rather than down town. This decision necessitated more than one building in order to take care of all the children without sending any of them too far to school. The board, accordingly, bought two sites, one on the east side and the other on the west side of the city.

The site on the west side covers about six and one half acres so situated that it can be enlarged later and that on the east between thirteen and fourteen acres. In locating these sites the board took into consideration the possible additional need of two more junior high schools and so located the present buildings that two additional buildings can be located north and south of the center of the city without serious overlapping of territory. All of the sites will be within walking distance from all parts of their districts.

In planning the buildings and laying out the site, the fundamental idea underlying every decision was that this was not an elementary school or a senior high school but a school intermediate between the two and that the building and grounds should serve the needs of such a school so far as these needs were recognized and could be realized. The board also kept constantly before it the idea of the building serving as a neighborhood or community center for children and adults.

The program of studies to be carried on in the building was first decided on and a careful estimate of the needs of this program furnished the architects. Plans as developed furnish facilities for this work and in the opinion of the authorities at Richmond are a contribution on the part of the architects not only to school architecture but to educational theory as well.

The two plans are identical in the facilities offered. The program of studies offered in the Richmond junior high school require of all pupils certain academic or book subjects, a certain amount of experience in household arts for girls and wood and metal work for boys, physical education and music and art. Possible elections allow the pupils to take more or less of these various lines of work as their abilities and inclinations may lead them to choose but all pupils take some of all of the various kinds of work offered.

Special features of these buildings are briefly these: They are each planned to accommodate about 750 pupils, estimating 30 to 35 as classroom capacity. The board felt that 750 pupils is a large enough group to administer economically, give the elective opportunities necessary at this age and still not have so large a group together that the individual child cannot know all the faculty and the greater part of his fellow students. This latter consideration is of very great importance to the social organization of the school. There are no so-called study halls. The school program is based on a six period day, and with supervised study in the classroom and some assignment of the child every period of the day, the study hall is not needed.

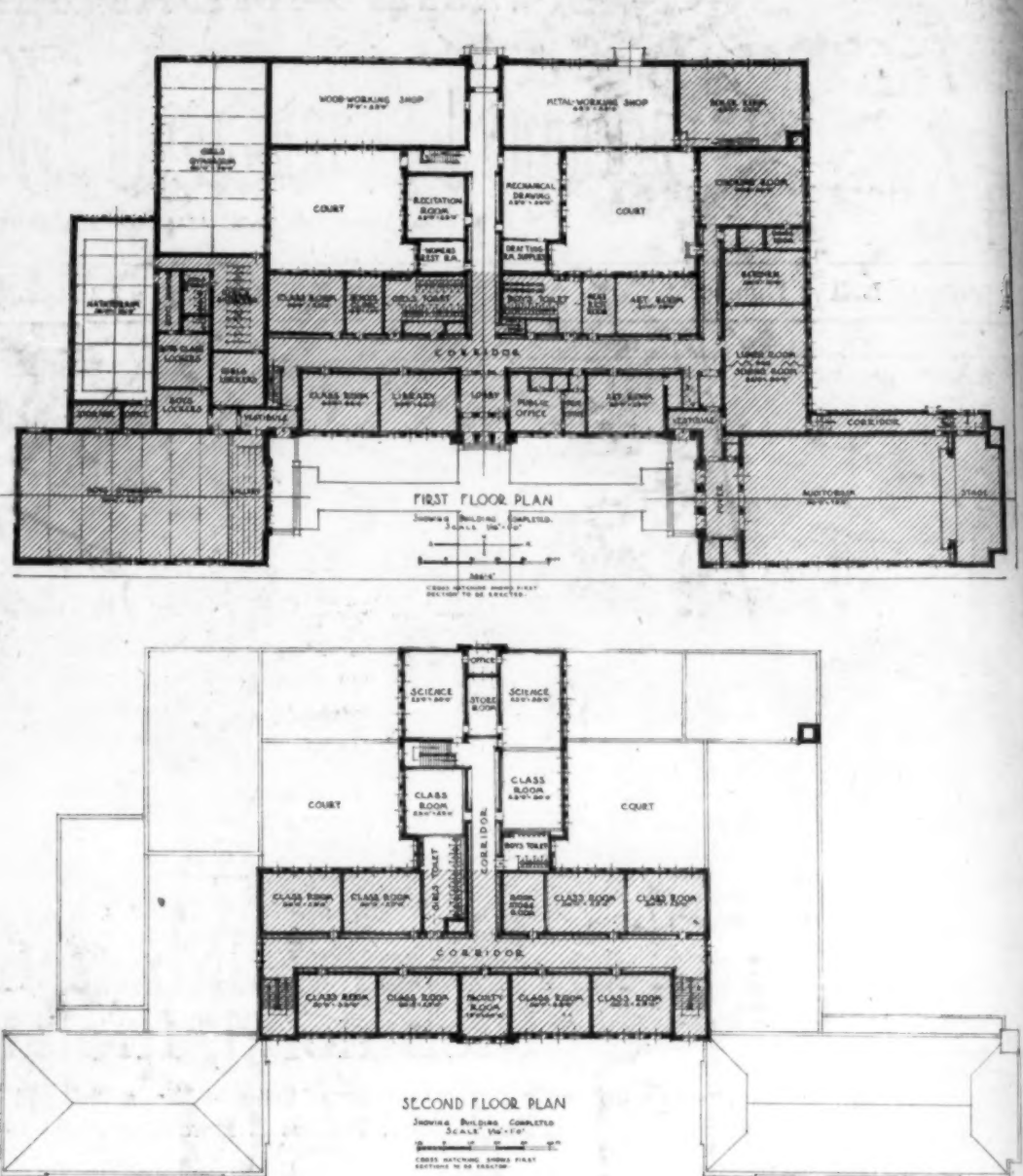
The science laboratories are to be equipped with large tables and chairs. Water, gas and electricity will be available in the room but the ordinary science room equipment of elaborate desks will be absent as not necessary for the type of science work suitable for these grades.

The practical-arts work for girls will carry on in a large cooking room equipped with unit kitchens consisting of four burner double oven gas ranges such as are found in most homes, a sink and a kitchen cabinet. Here the girls will cook in "home" sized portions, as far as possible taking their product home for the "acid test" of home consumption.

The kitchen adjoining the lunch room will be taken care of by the girls electing additional work beyond the compulsory courses. The large dining room is divided by folded partitions into two rooms for sewing classes. This device has worked all right in practice and is a necessary building economy.

For practical arts for boys two large shops and a drawing room are provided. The general wood shop is to have opportunities for bench work, pattern making, cement and electrical work. The general metal shop is to be equipped for metal work, machine shop work, electricity, forging and foundry work. All the work is to be handled on a project basis and the only limitations to the projects selected will be the obvious physical limitations of the shop environment. No highly specialized or vocational work in the strict sense of the word will be attempted. This type of work is reserved for the senior high school and with a flexible administrative control a 14-year old boy who for any reason needs the vocational work is transferred promptly and easily to the senior-high-school shop. This tends also to keep the group in the junior high school and the senior high school more nearly homogenous as far as social needs are concerned.

The drawing room will not offer the formal mechanical drawing course. It is to function as a sort of reference room for projects in either shop. In getting a project under way a boy realizes the need of drawings not only to work by after the project is approved but as a means of getting the approval of the instructor before the project is started. He is therefore sent to the drawing room for enough help to get this drawing out. Mechanical drawing is thus taught as a means to an end which is its proper relationship under actual working conditions.



FLOOR PLANS OF WEST SIDE JUNIOR HIGH SCHOOL, RICHMOND, INDIANA.
Perkins, Fellows, & Hamilton, Architects, Chicago.

The work in physical education is to be organized on the game basis. Interclass contests and some interschool contests will be encouraged but nothing on the scale of the interscholastic contests of the upper school will be allowed. To this end the gymnasiums are simply large airy play rooms with a small gallery and no running track and equipped with a minimum of apparatus. The boys' gymnasium in each school makes provision for spectators but only up to a possible 400. A necessary adjunct to the gymnasiums are the outdoor play fields which embrace a standard quarter-mile running track, tennis, volley ball, basket ball, and hand ball courts together with baseball and football fields. These fields will have concrete grandstands under which will be showers and locker rooms for men and women. This will make the outdoor play ground independent of the indoor and make it easier for the gymnasiums and fields to be used by the adults in the neighborhood as well as by the children in the schools. Each school is to be provided with a natatorium. All the gymnasiums and swimming pools are so grouped that they can easily be used without regard to the rest of the building.

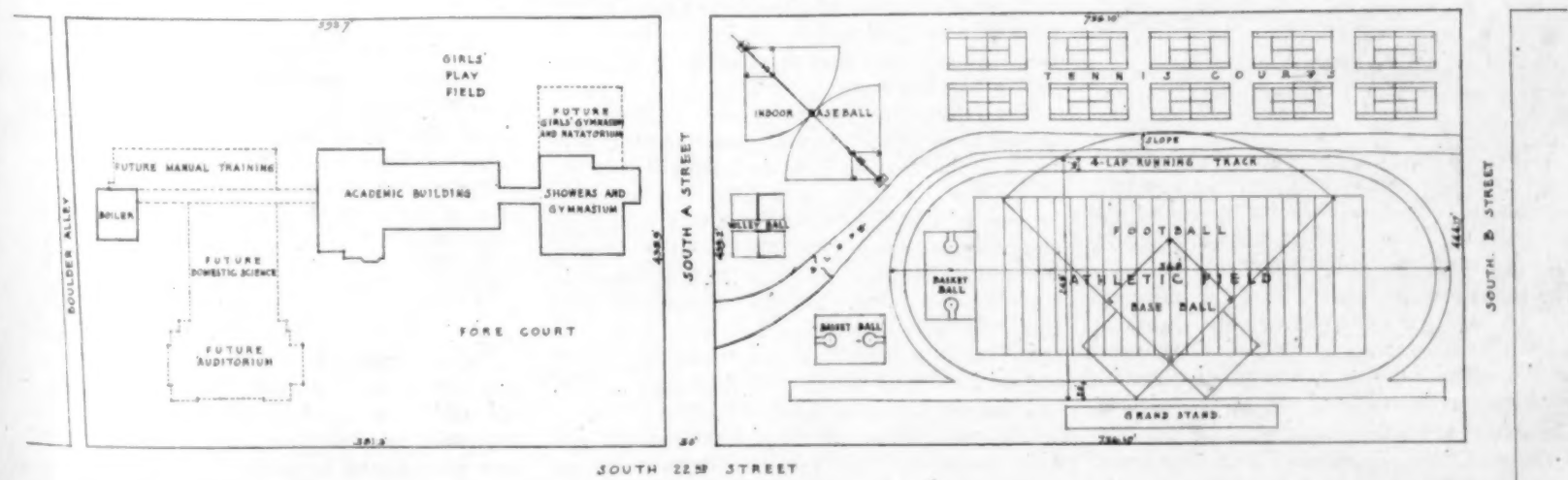
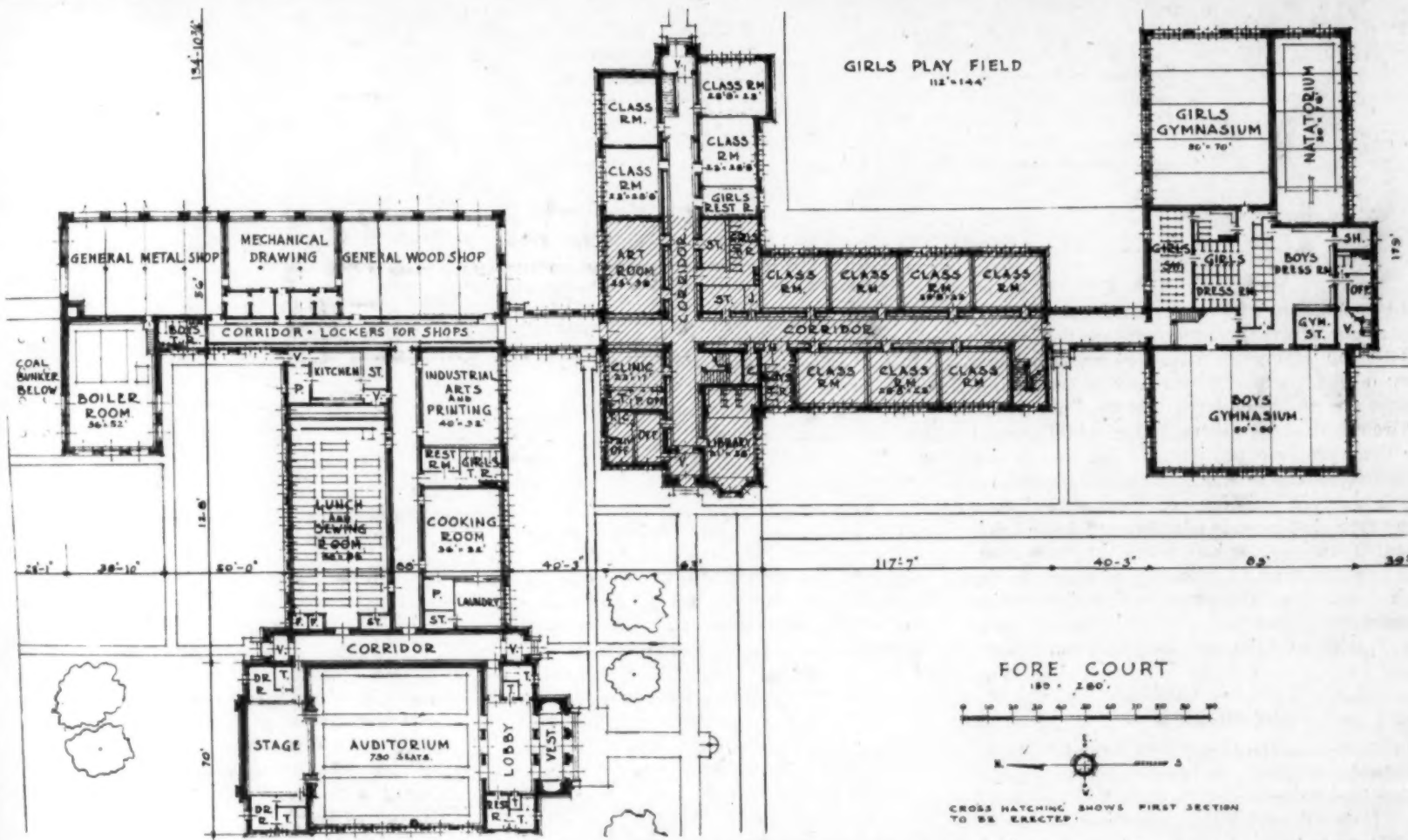
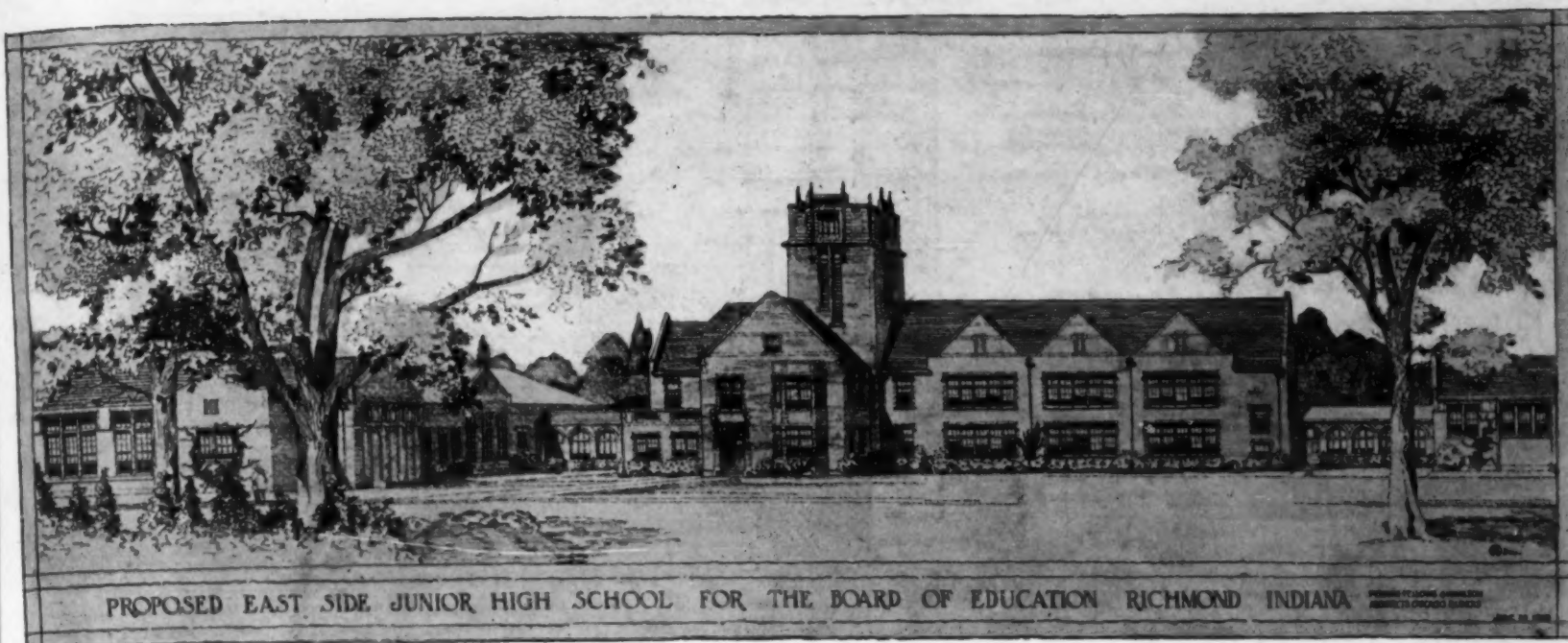
These two completely equipped athletic fields are to function in the summer time playground program by providing places for organized play for the older boys and girls, thus leaving the playgrounds around the elementary schools for the use of the smaller children who enjoy the simpler games and the use of the playground apparatus.

The auditoriums in each building are planned for 750 seats on the floor and are without gal-

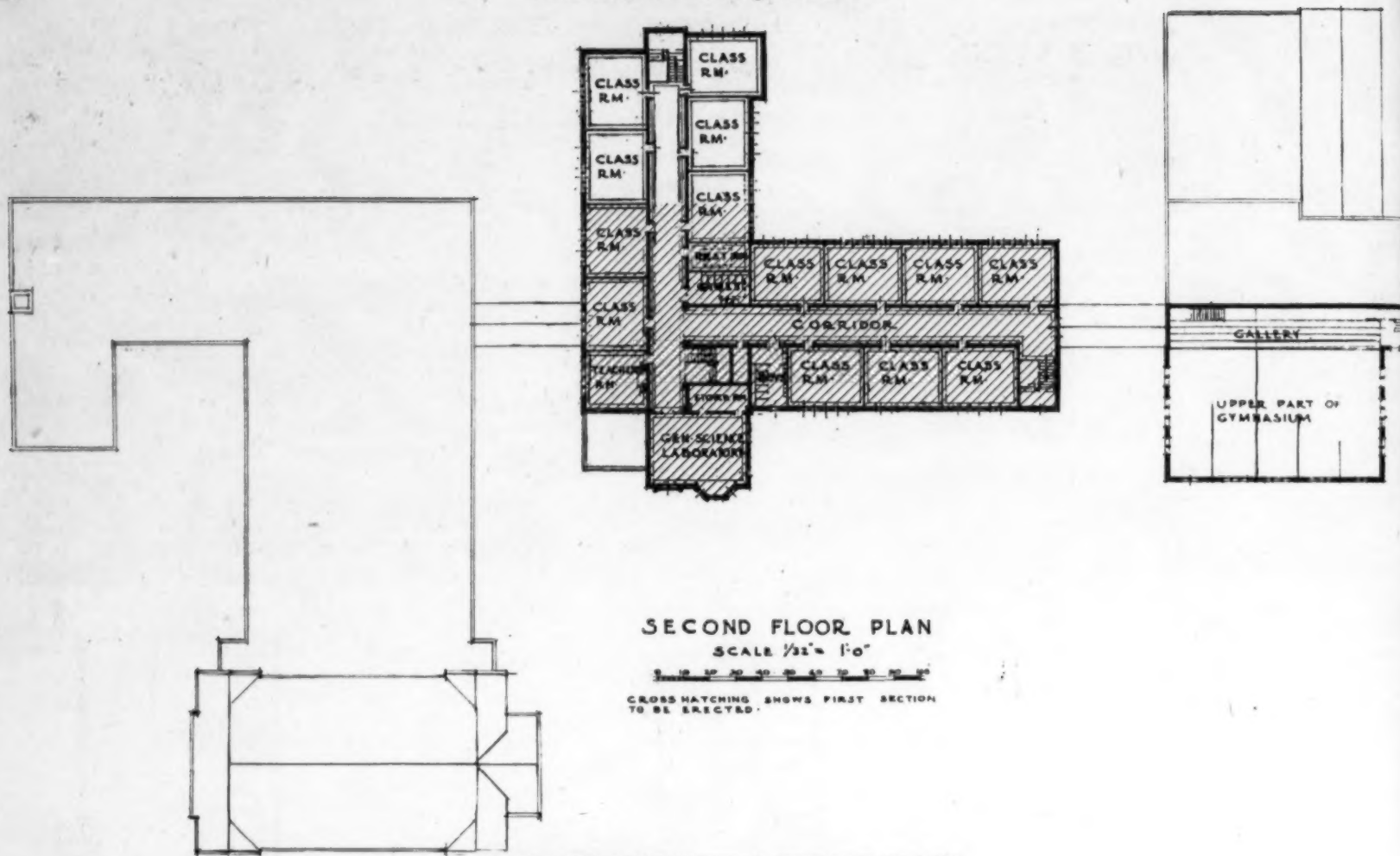
leries. Each has a stage large enough for a chorus of from 150 to 200 voices. These stages are not to have flies but will have ample room for the staging of plays suited to the age of the children and will allow room for the storage of simple sets of scenery on either side. During school hours the music classes will meet in the auditorium and the orchestra will rehearse there after the school hours. Each auditorium is equipped with dressing rooms, toilet facilities, separate heating and ventilation so that they can be used by the neighborhood without opening the rest of the building.

The west side building includes two courts that can be set to grass and shrubs because of their size and because the building around them is only one story in height on two sides of the court thus guaranteeing plenty of sunshine. One of these will open off of the girls' gymnasium and will form an outdoor exercise room; the other opening off a corridor near the kitchen will lend itself to evening parties. In the east side plan the girls have a similar exercise field opening off the gymnasium and the fore court offers many opportunities for pageants, etc.

Not only has the board tried to build buildings suitable to the junior-high-school work in the interior arrangement of its proposed buildings but it has sought in the outside appearance to express as far as possible the idea of the intermediate school. To this end it adopted a plan that combines the one and two-story types of construction and has sought so far as possible to get a building that would not have the conventional public school appearance.



PERSPECTIVE, FIRST FLOOR PLAN AND PLAT PLAN, EAST SIDE JUNIOR HIGH SCHOOL, RICHMOND, IND.



EAST SIDE JUNIOR HIGH SCHOOL, RICHMOND, INDIANA.
Perkins, Fellows & Hamilton, Architects, Chicago.

In conclusion, Richmond has, because of her experience of over twenty years, settled on the 6-3-3- plan of organization for her school system; she feels that there are three distinct groups among her children that need a different environment and a different curriculum content for their proper education. In her new junior high schools she is planning for units of about 750 housed in buildings of the one and two-story type that provide education of a kind different from the years before and the years after, and is attempting to express this difference by their interior arrangement and their exterior appearance. How well she will succeed, only the experience of the next few years can tell.

THE BUILDINGS.

By Mr. Perkins.

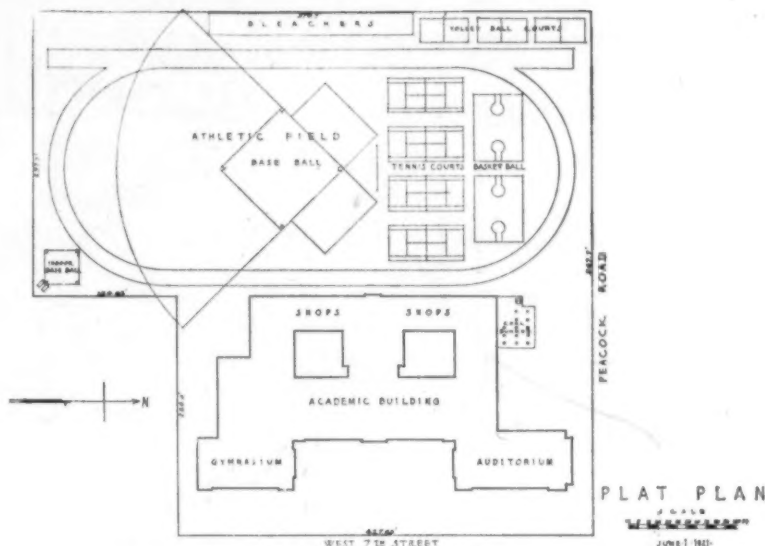
In describing the educational plan of the Richmond schools insofar as it relates to the junior-high-school or intermediate school problem and the solution there adopted, Mr. Bentley has described the buildings as well as the system which is to make use of them.

Little remains except to direct the readers' attention to the illustrations which include block or plat plans, first and second stories and exterior views of each building as they will be when completed.

Funds sufficient for the entire construction are not available at first, the year 1921, so only a portion in each case is to be erected at the present time. These portions are indicated by the shaded areas on the block plans.

The plans are so arranged that the buildings are to be used for all kinds of school work at first but may be rearranged for each department when the school building and population are increased later without loss of initial construction.

The acreages of the sites are, west side 6.4, and the east, including both blocks 13.5 acres. The west side may, and in the near future probably will, be augmented by purchases of land south of the building and of the field as well. The east side includes two blocks and is large enough for all requirements.



WEST SIDE JUNIOR HIGH SCHOOL, RICHMOND, IND.

Because of the group plan adopted it is of no interest to give dimensions of each unit. The extreme dimensions of the entire group on the west side are 385 feet north and south by 200 feet east and west and those of the east group 510 feet by 320 feet.

The value of all reports of cost is limited but it may be of interest to state that the cubic contents of the west building is 1,400,000 feet and of the east 1,900,000. The difference is largely because of the high roof over the east building and the extra space devoted to vocational training and to features which will be apparent in studying the plans. At the rate of 30 cents (building costs vary for each locality as well as from week to week) the west building would cost without land or equipment about \$420,000, and the east building \$570,000.

One great advantage of the non-central site with adequate land was the opportunity to spread out the plan, to adopt the two-story idea for the academic or classroom portion and the one-story scheme for the larger units, gymnasiums, auditoriums, shops, etc. In addition, a present advantage equally great, was the possi-

bility to build but a section or portion at first and to be able in the future to complete the structure without waste of construction nor interruption of school use.

The construction is fireproof, and in all matters of lighting, sanitation, heating, and ventilating these buildings comply with the requirements of the State of Indiana which in short embrace everything found to be necessary by science and by the best modern practice.

In design, as Mr. Bentley has stated, the aim has been to express modern school life as related to the seventh, eighth and ninth years in a boy's or girl's education. No attempt has been made to follow strictly any fully developed style of architecture of the past, the requirements in fact make that impossible. Some of the forms or details associated with the renaissance have been adapted and used in the west side, or David Worth Dennis Building, and in a similar way Gothic forms and details have influenced the design of the east building. The same general laws of proportion and fitness have been followed in both cases.

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Some Defects in Schoolhouse Planning

Frank H. Wood, Chief, School Buildings and Grounds Division,
State Department of Education, Albany, New York

No class of buildings has been subject to such a marked change and improvement in the past two decades as the public school. This transformation is unquestionably traceable to an aroused public interest and a better appreciation of the needs of school children, which has resulted in the general enactment of State laws prescribing definite standards and specific requirements for the construction of school buildings and providing for the approval of plans therefor by central authority.

However, as this transformation is not restricted to the features commonly specified in building codes, such as arrangement of rooms, floor space, air volume, window placement, heating and ventilation, fire protection, etc., the question naturally arises why a corresponding advance in design and architectural appearance over any like preceding period has also been made. In answer five reasons may be assigned:

1. The increased interest in the housing of school children which led to the enactment of existing laws.
2. The increasing recognition of the need of employing more skilled and better trained architects to meet present-day standards and requirements.
3. The helpful, stimulating influence of the approving authority.
4. The large increase in building costs which, in itself, calls for greater care in planning.
5. The growing recognition of the fact that the beautiful in architecture, exemplified in a school building, has a far-reaching educational value and exerts a helpful, uplifting influence upon the pupils who are its fortunate occupants.

But while we may very properly look with content, and with some degree of pride at the advance that has been made during these recent years, we have by no means attained a stage of progress where there is any justification for satisfaction or for diminished efforts for further improvement. There are far too many defects, too many failures in planning for that, too many difficult problems yet to solve. Moreover, each passing year brings with it fresh demands, new opportunities and further possibilities of development.

Building for the Future.

Many of our people seem obsessed with the idea that school plans approved five, ten or even fifteen years ago should be accepted without question today. Within a few weeks, school officers from three different localities have requested of us the reapproval of plans under these conditions. In each case it was possible to point out changes and modifications that will result in marked improvement, and, in two of three, in actual reduction also in cost.

In buying a new automobile, who would call for a 1911 or 1916 model? Is the school the only interest, the least interest, or the last interest where progress is to be expected? Perhaps the leading cause of failure in school planning is lack of vision. In fact nearly all the errors and defects of construction might logically be classed under this general head. Failure or inability to visualize either the present needs or future demands is common. Especially common is the failure to recognize that it is vastly more important to anticipate tomorrow than to satisfy today, that the future is much longer than the present and concerns incalculably more.

It follows, therefore, from the nature of things that in school planning, the task involving at once the greatest difficulty and most serious responsibility and demanding the exercise of utmost skill and ability is the one that concerns the rights and interests of the children of the coming days. Those, therefore, to be entrusted with leadership in this field should be selected with special care and should be first of all men of foresight and vision.

A striking exemplification of the result of failure to apply this principle of action may be seen in the small, unsuitable sites selected for schools in the past when large magnificent tracts were then available at small cost. Oftentimes also so little allowance is made for future growth and development that the building is filled to capacity immediately upon being opened for use.

School boards and architects frequently seem forgetful that in the construction of buildings of any considerable size a growth of school population of two years must inevitably take place and be accounted for between the time of the first initial steps and the completion of the structure. They also seem to overlook the fact that a new building, particularly of high school grade, in itself exerts a marked influence on registration even in places where the census itself shows little change in population.

In general it should be said that in all centers of population, it is particularly important to devise and adopt a far-reaching, comprehensive, systematic plan for the location and construction of schools for the future—a plan with sufficient elasticity to admit of ready development and adaptation to all needs and demands as they arise in a manner best calculated to safeguard the interests of all, to assure fullest opportunity to the pupil, highest efficiency of administration and greater return for monies invested. The responsibility of the present to the future in school planning is certainly a grave one and should be conscientiously discharged with utmost care, skill and forethought.

Architects and Architects

The architect must always be given a prominent place and considered a factor of unquestioned importance in the building problem. He is a necessity. We cannot get along without him. He has his troubles with us and so do we with him, but when in the course of the solution of any common difficulties, we reach the common ground of agreement that the school is for the child and that that is the only reason for its existence, we are apt to get on well together. Our greatest difficulties with architects, when we have difficulties, are with two classes:

1. Those who have had little or no experience in school building planning with everything to learn.
2. Those who have had much successful experience but have reached a point where they have nothing to learn.

Of the two, the first is decidedly preferable to deal with, notwithstanding the expense of time and effort involved.

Three Types of Plant.

Architecturally speaking, plans that pass through our hands may be loosely grouped into three classes—the mechanical type, the striking exterior, and the one combining utility and artistic merit.

The first type meets all minimum requirements and fully satisfies the prescribed mathematical standards. It is obviously conceived with that sole end in view. In it is to be found the monotonous interior devoid of the originality and the niceties that give individuality and character, even where much sameness must inevitably exist. Its exterior has so much in common with the factory type as to leave little ground for choice between them.

The plea of insufficient appropriation is an excuse for it rather than a reason. It is a product that comes from following the lines of least resistance. A pleasing edifice with a limited appropriation is unmistakable evidence of a skillful architect, one who spares not a full admixture of grey matter with his planning.

When one examines the second type of structure, the first as well as the lasting impression is that of external effect. It is evident that in drawing these plans, the architect has not been sitting beside the pupil in the schoolroom and following him in his daily school routine, but instead, has taken his place with the passerby on the street, and so far as rules and codes can be interpreted to permit it, gives the outsider precedence over the pupil. In this type there is often an effort to perpetuate in minute details some special type of architecture, conceived it may be for cathedrals, temples and palaces, long before public schools were dreamed of. In this type one is forcibly impressed with the fact that it is the appearance of the building rather than its purpose, the casual observer rather than the child to be housed, that has been the center of attention.

In the third type we see combined in a pleasing and satisfactory manner both utility and good architecture. In this type the architect has manifestly centered his first thought on the proper housing of the pupils. In the doing of it, however, he has never been unmindful of the fact that by skillful arrangement and grouping of classrooms, special rooms and administrative rooms, there is always ample opportunity for pleasing design and reasonable architectural effects.

This is the type of building that can well occupy the best thought of the most skilled architects, the type that needs to be developed and perfected to the fullest extent, the type that is coming to the front and is bound to endure.

Study of Site Problem.

An essential step preliminary to the preparation of a set of plans for a school is a careful discriminating study of the site. To one familiar with the peculiar needs and requirements of the situation, this course of procedure would seem to be unquestionable and self-evident. It is surprising, however, to receive plans from architects of high reputation in which this principle of action has been entirely disregarded, plans in which the commonly accepted and fundamentally important dicta regarding the orientation of a school building have been utterly ignored and other important considerations passed without attention.

From a little critical examination and comparison of conditions in such cases, one is led at times to the inference, if not the conclusion, that it must be a practice with some to use a stock plan with minor modifications to fit sites indiscriminately without either making up a set *de novo* to fit the site, or skillfully adapting an old set to new setting and conditions.

On the other hand, we have the refreshing and most gratifying experience of receiving plans which have not only been made to fit the site *per se*, but are in harmony with the surrounding landscape and architectural features of pleasing character, are fitted to the life and ideals of the community as well as its actual needs.

The American habit of haste and waste is inwrought in much of our school building planning. In some directions, it is true, it no longer exists in such generous proportions and striking fashion in our newer structures as in the older type of buildings that still linger with us in embarrassing numbers, buildings with their dark cellars, and capacious attics, their ill-shaped rooms and unusable areas and air spaces.

Much waste still is clearly to be found in divers forms and shapes in our newer buildings. It appears at times in excessive width of corridors. It is seen in providing a seat for every pupil in high school study halls, although he occupies the seat only one-third of the school day. It is to be seen also in the odd shaped, badly located areas usually labelled "unassigned".

It is sometimes found in its most aggravated form in cutting down the size of rooms, cheapening equipments and even leaving out essentials in order to come within the appropriation instead of facing the issue squarely and securing the necessary funds to construct a genuinely satisfactory building, one that it will not be necessary to remodel or replace within a score of years. It is far better, if need be, to endure for a time present conditions than to inflict upon the children of future years a building that will always be unsatisfactory.

One of the most common and regrettable mistakes is to cheapen the heating and ventilating system of a school, from the pupil's standpoint, the most vital part of the building, its very heart and lungs. Moreover, what is seemingly a monetary gain is sure to prove a serious financial loss, for there is nothing more expensive or more unsatisfactory in a school than a poor, cheap heating plant. In this and other respects, that might be pointed out if time would permit, the point of real importance is not so much the first cost as the annual upkeep.

Waste in Misplacements.

In these later days, we are coming to make extensive provision for shops and laboratories, which from their practical character, do not call for the expensive construction and finish that should characterize studyrooms, classrooms and recitation rooms. Cheap construction and finish would seem more appropriate and would be far cheaper for housing large vocational departments, which from the nature of the equipment and work undertaken, should be somewhat isolated from other departments if indeed not located in separate buildings of factory type of construction.

The location of shops, heating plants, coal storage and large supply rooms upon the first floor or in most favored localities of a building needs frequent discouragement. In these days when building costs are high and must continue to be relatively so, when so many pupils are on part time, it is particularly important to eliminate all waste and to reduce to its lowest terms every part of the problem as it comes up for solution.

The nature of many of the plans that come before one for approval induces the hope that some time some way may be discovered whereby architects may be paid according to the efficiency of the school plant he designs rather than on the basis of its cost.

There must be the united cooperative effort of all interests in the endeavor to make the school plant both as economical and efficient as pos-

sible, and all measures necessary to assure this result should be adopted.

The electric lighting found in school buildings is commonly poor. Fixtures are frequently cheap and not well located. The direct fixtures often seen, even in new buildings, should not be tolerated for they cast a sharp shadow and give an uneven distribution of light, two very serious objections. They also detract much from the appearance of the room. In planning for the artificial lighting of schoolrooms, school boards and architects should familiarize themselves with the work of experts, such as the Illuminating Engineering Society.

In this connection mention should be made of the importance of providing outlets in all rooms wherever there is any probability of occasion at any time at all to use projection lanterns, and also of making suitable provision for installing motion picture apparatus. Any one with open eyes cannot in these days fail to foresee the important part that visual instruction is to play in the schools of tomorrow. Hence the frequent failure to make any provision for this form of instruction is serious and apparently inexcusable.

Notwithstanding the manifest objections to metal ceiling in schools, despite the efforts to discourage its use, architects have continued to specify it to such an extent that it has been necessary to insist upon its entire discontinuance with us for the following reasons:

1. It is particularly objectionable as a reflecting surface for light. It is highly important to have a smooth, even surface of uniform color, flat white modified slightly by the side wall color.
2. It is insanitary, collects dust and is cleaned with difficulty.
3. It constitutes a radical violation of the basic principles of design in that the material is mechanically moulded in imitation of plastic forms. It is not adapted to this treatment and because of its limitations, the design cannot be sharply reproduced and the imitation is apparent.
4. A pre-determined figure or division is a necessary condition of manufacture and cannot be adapted to the proportional dimensions of a room.
5. Thin sheet metal is not a fire retardent or preventive, will quickly yield to heat and the resulting deformation will dislodge it.

Advantageous Grouping of Rooms.

The most desirable and advantageous grouping of rooms, particularly in secondary schools, receives far too little attention. The architect frequently seems entirely satisfied when he has partitioned off the floor areas into corridors and rooms of the required number and dimensions, regardless of related lines of work, fitness or convenience. Here is at once the need of intelligent, intensive study and the opportunity to demonstrate technical ability of the highest order.

Upon examining a set of plans, it is easy to discover whether those charged with the responsibility of presenting them have made a real study of the school activities for which they are planning, whether they have in imagination put themselves in the place of the principal, the teachers and the pupils; whether they have grasped the details and the technique of the problem that they are called upon to solve.

Herein lies the pertinency of the question, "Should not specialists in school architecture always be selected for schoolhouse planning?" The correct answer to this query, in my opinion, is, "Either employ a specialist or an architect who has been to school and who is not only willing, but ready and eager to continue to go to school so long as he continues to plan school buildings.

Let me take the opportunity to refer to certain elements of grouping which in greater or less degree fail to receive adequate attention. Study rooms are at times located at the ends of corridors or in remote portions of the building, instead of at the center of school activities from which there is a ready and natural distribution of pupils to recitation and work rooms in various directions.

So far as possible, the recitation rooms for subjects of required study should be located in proximity to study halls, as the groups of pupils in these subjects are apt to be larger than in elective subjects. Connecting doors between properly grouped recitation rooms also facilitate the movement of classes, economize in time and help to reduce to the minimum opportunities for confusion and disorder.

Plans from the hands of most experienced architects sometimes show unaccountable inconsistencies—lunch rooms will be placed as far as possible from home-making room suites as though the two had no possible relationship; laboratories will be found in the central portions of first and second floors, study rooms on the top floor, reference libraries far removed from study halls, shops and commercial rooms given the choicest locations.

All of this tends to show a lack of critical study of the problem and appreciation of the fitness of things.

In constructing a school building it is a mistake to fail so to plan that it can readily serve for community use. A modern schoolhouse is too expensive a structure to be closed except during the few hours school is in session on school days. Fortunately this is the natural and logical place for community activities. This use of the building is in no sense a fad. It meets a real need.

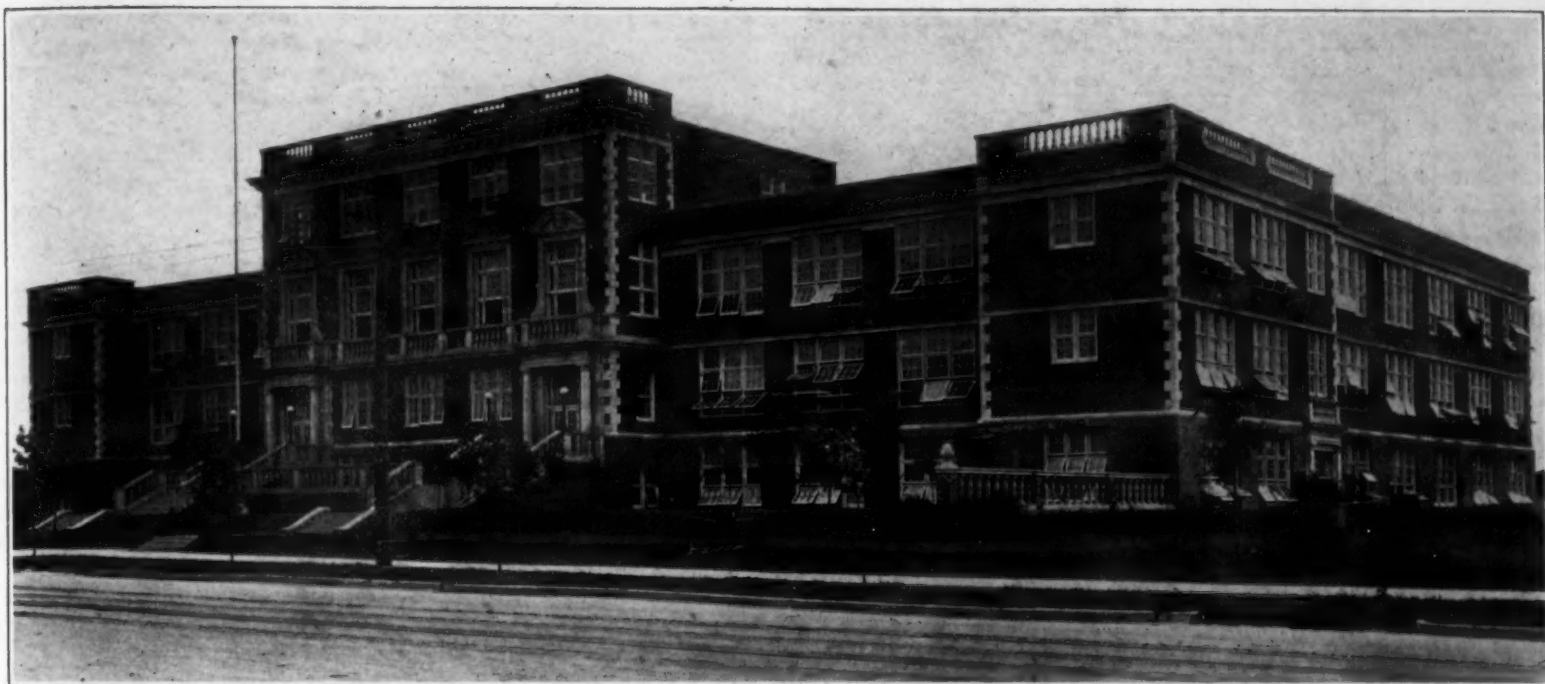
The school building, constructed and maintained at public expense, controlled by officials elected for short terms, usually by direct vote of the people, with rooms and equipment that meet alike the needs of the pupils and the public, is the most suitable and the most appropriate place for many community activities. Here are to be found no walls of separation between the rich and poor; no political, social or religious barriers can exist here. The beneficent results of these centers in communities where they have been established are beyond expectation or evaluation.

It is the consensus of opinion that rooms to be used for community purposes in a school building should be grouped together so far as possible on the basement or ground floor, and so planned as to be readily closed off from the rest of the building at night. Hence it has come to be the common practice to have gymnasiums, assembly rooms, auditoriums, home-making rooms, lunch rooms and memorial rooms grouped together on the lowest floors.

One of the two most significant developments of recent years of school planning in our State is the general and generous provision that is being made for the community use of the building. The other development is the radical change of attitude in the selection of sites. About this there may be opportunity to write at another time.

An educator recently said: "Teachers should have Objectives." Well, haven't they? Isn't an attractive marriage the constant objective of every last schoolmarm in Christendom?

"If I had my way I would do away with every desk in every school in the United States," declared Marietta Johnson, founder of the School of Organization at Fairhope, Ala., before a Chicago audience. Well, Marietta, you will have to keep wondering all the rest of your life why the American people won't let you have your way!



COMPACTNESS AND DIRECTNESS MARK THE ARCHITECTURAL BEAUTY OF THE FOREST AVE. HIGH SCHOOL, DALLAS, TEX. Wm. B. Ittner, Architect.

Modern School Plants in the South

Wm. B. Ittner, Architect and School Specialist, St. Louis, Mo.

Among the cities in the South that are evolving school building programs in a broad, comprehensive manner are the following: Dallas, Port Arthur, and Corsicana, Texas; Birmingham, Ala.; Savannah, Ga.; Durham, North Carolina, and Jacksonville, Fla. These cities have joined the front ranks, as far as modern buildings are concerned. And there is abundant evidence that broad educational policies also dominate the educational programs.

The Franklin School at Port Arthur, Texas, was described in this journal in the April issue of 1920. Its characteristic features, therefore, need no further comment here. The building program of Corsicana, Texas, is just being developed. Its "high lights" will appear in a future issue of the Journal. The September, 1921, number of the Architectural Forum includes an account of the schools of Jacksonville, Fla. This article is the first of a series of articles on the school plants of Dallas, Birmingham, Savannah and Durham.

Dallas, a Wonder City of the Southwest.

Dallas, a most thriving southern city, with a population of approximately 160,000 people, is the gateway to Texas and the Southwest. It is fortunately located in the "heart of an immense, fertile, rapidly-growing inland empire."

From the bulletin issued by the Dallas Chamber of Commerce we read that the city ranks among the first fifteen jobbing centers of the nation; leads in the manufacture and distribution of cotton gins, saddlery, harness, leather goods, and cotton seed products; is the world's third largest distributing point for farm implements and machinery, and leads the Southwest in the distribution of dry goods, automobiles and related lines. The headquarters of many of the largest oil companies are in the city and six petroleum refineries are operating there. Dallas is also an educational center, being the home of sixty-seven private schools.

But perhaps its beautiful homes, spacious parks, luxurious hotels, and the modern architecture of its high schools, commercial and public buildings are among the chief attractions to the interested visitor in the city. It is indeed to the city's credit that in caring for rapid increases in population and for its industrial and commercial advancement, civic pride and due

attention to the esthetic have not been neglected.

Broad Educational Policies.

The problem of adequate housings for its rapidly growing school population, as well as other problems peculiar to southern cities, have not blurred the vision of the Superintendent of Schools, Mr. J. F. Kimball, and board of education of this prosperous city. How refreshing indeed, to note the demands of the school authorities for enriched school facilities, and for school plants that constitute architectural assets to the community! There can be no more effective indication that Dallas is building solidly for her future welfare and prosperity.

There are four high schools in the city with an enrollment of over 4,500 students, and forty-one elementary schools with a total enrollment of 20,000 pupils. Three of the high schools were planned and executed by the writer. The more recent elementary schools were developed

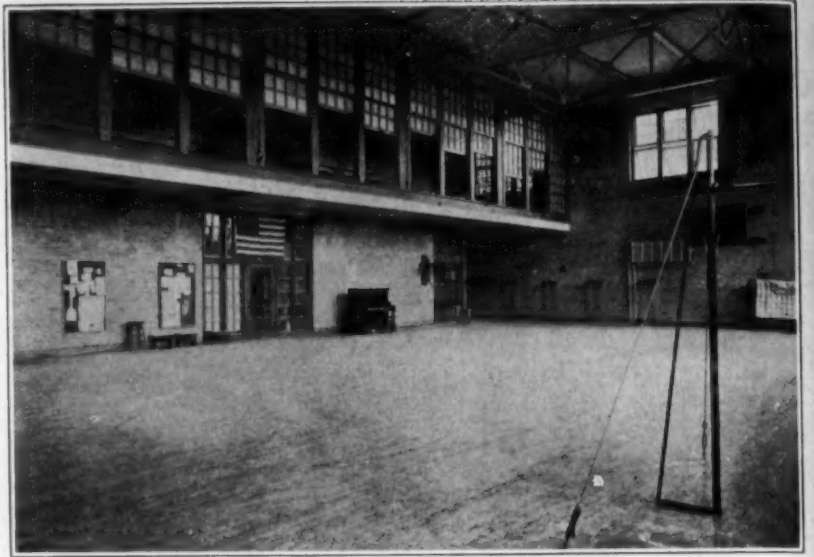
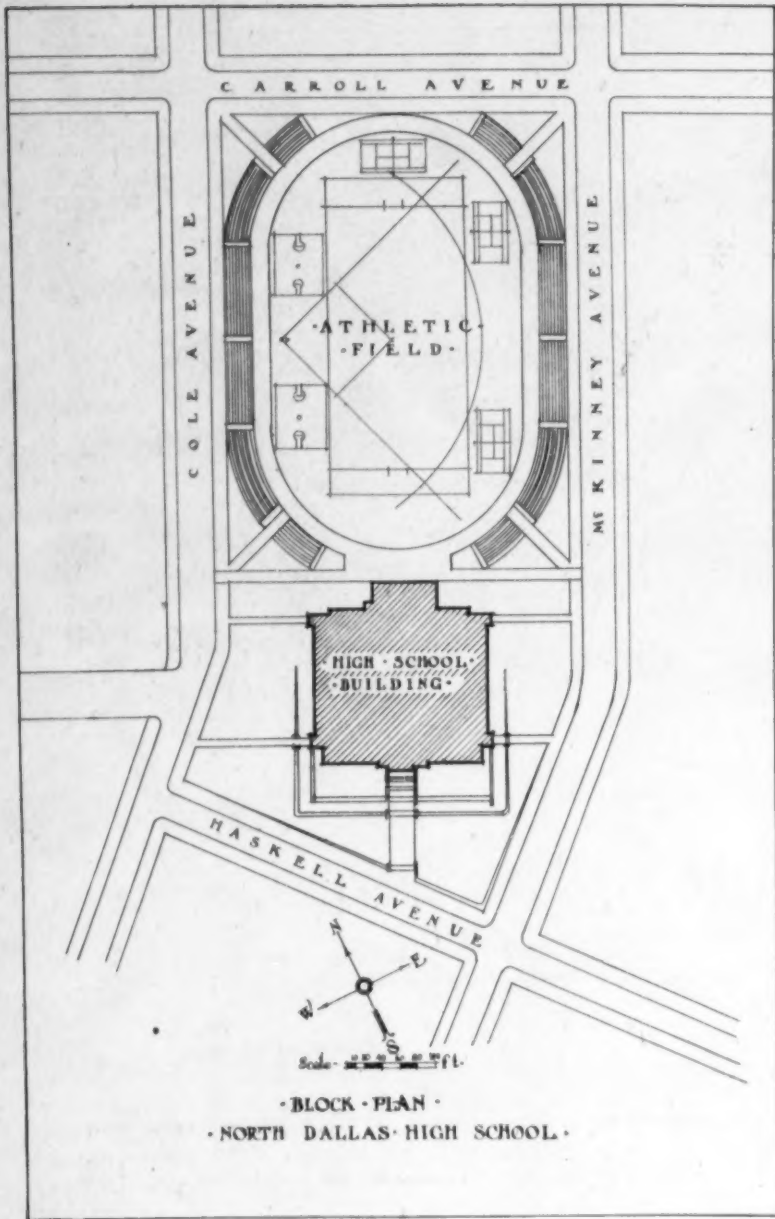
in association with the local architectural firm, De Witt & Lemon.

The High Schools.

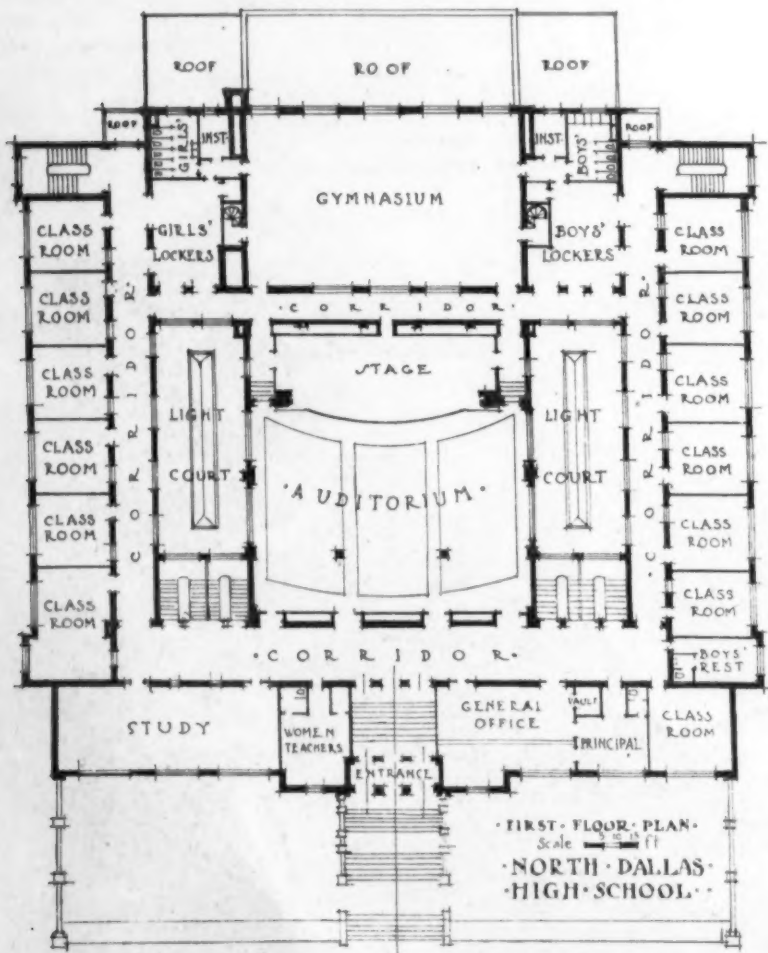
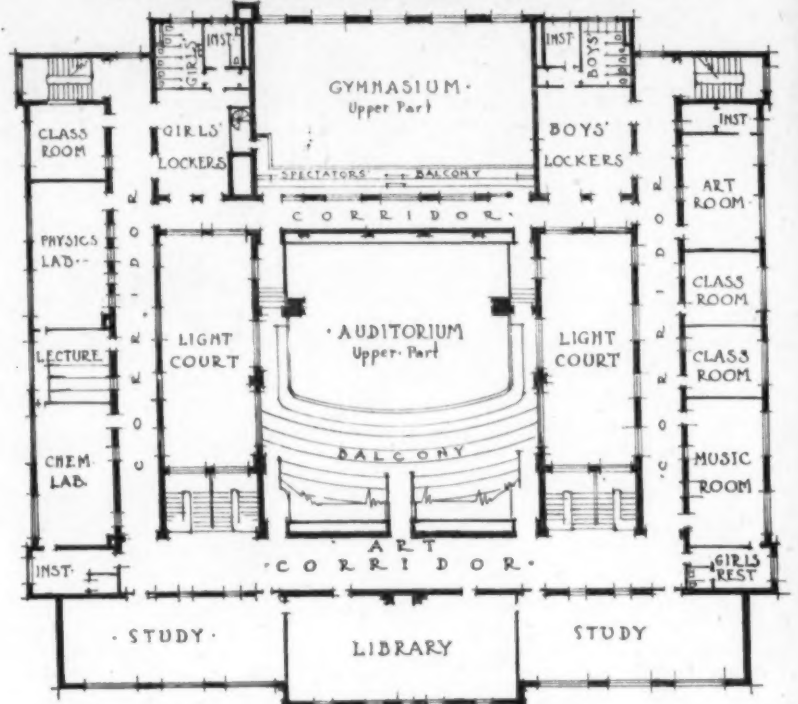
The Forest Avenue was the first high school erected. This was immediately followed by the Oak Cliff, and finally in 1919, by the North High School. The complete plans for the Forest Avenue and the North High were executed at once. The Oak Cliff School, however, although complete in the original plan, was erected in two sections. The part including the classrooms, laboratories, library, study room, commercial departments, administration and accessory rooms was built in 1915, followed by the auditorium, physical education quarters and lunch rooms, three years later. All the plans were developed with due consideration of those objectives that are guiding the evolution of secondary education, viz., health, fundamental operations, citizenship, and the worthy use of leisure.



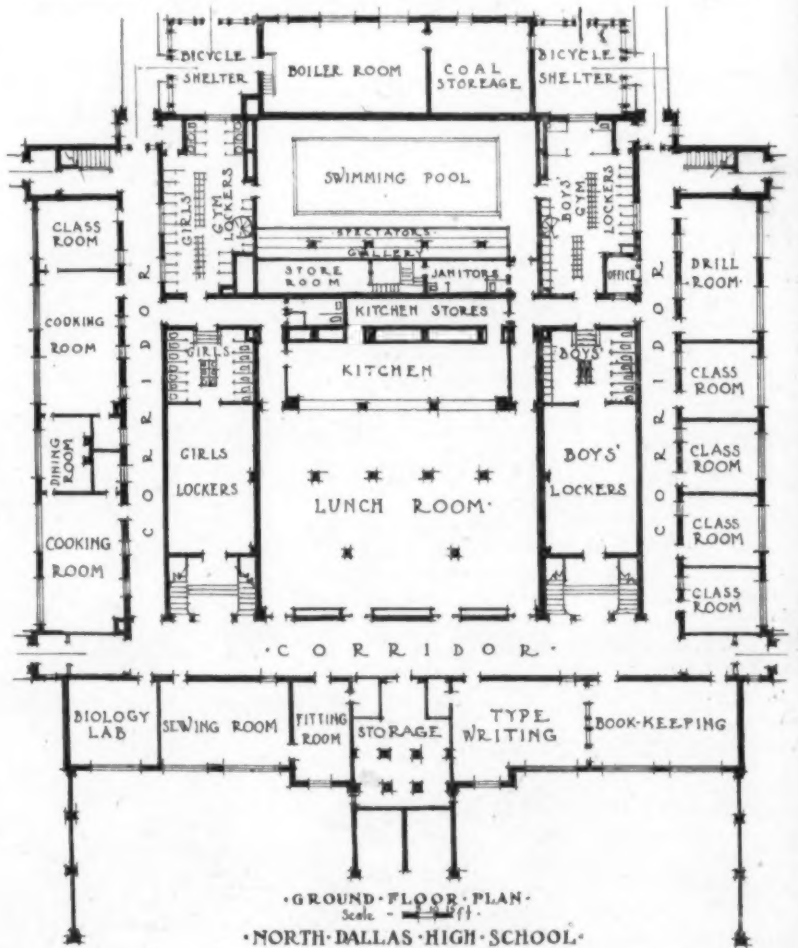
THE SPACIOUS LIBRARY OF THE FOREST AVE. HIGH SCHOOL, DALLAS, TEX., LENDS ITSELF TO SPECIAL DECORATIVE TREATMENT.

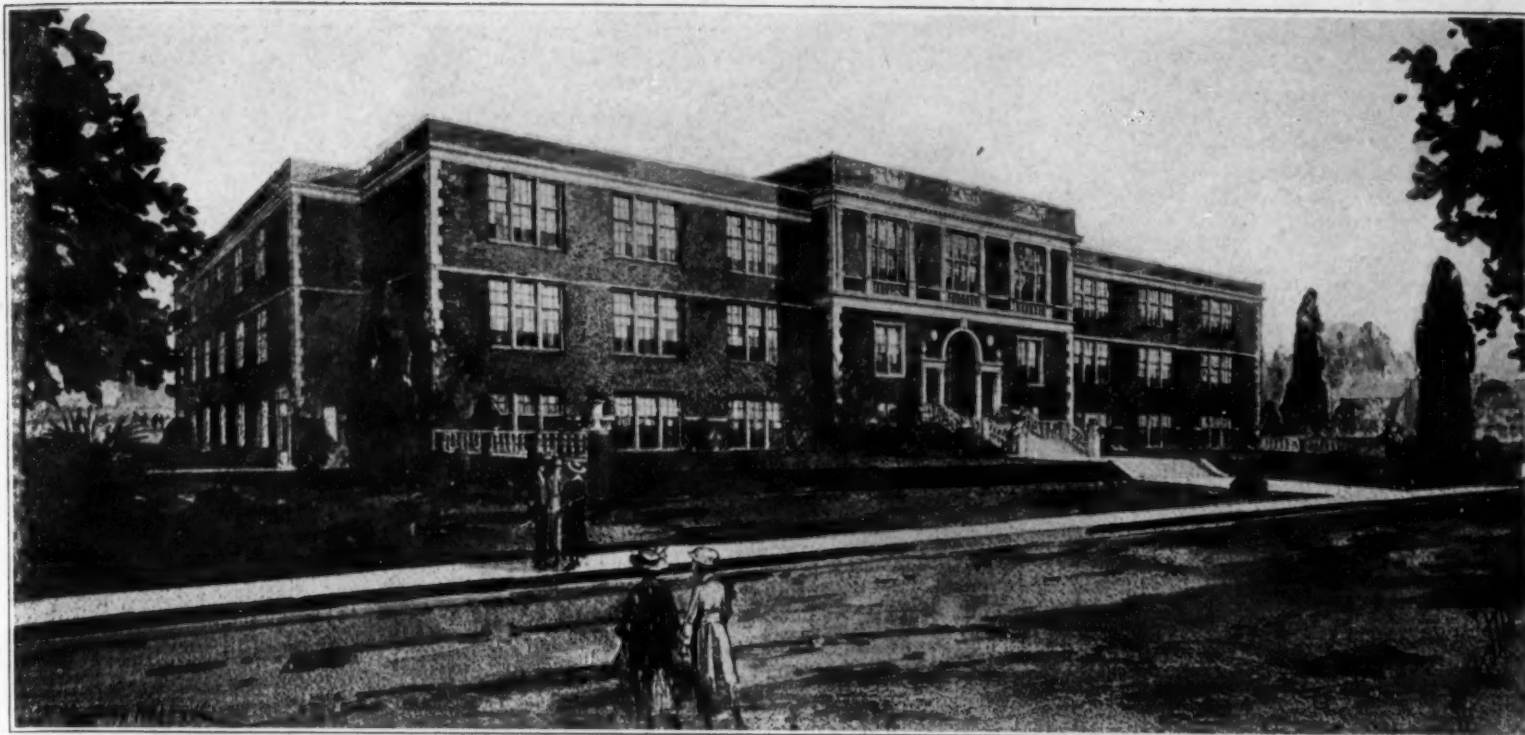


GYMNASIUM, FOREST AVE. HIGH SCHOOL, DALLAS, TEXAS.

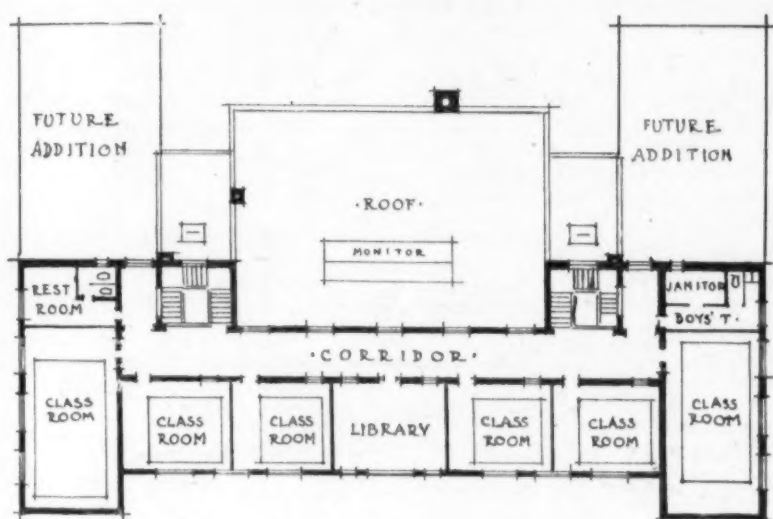


WILLIAM B. ITTNER, ARCHITECT, ST. LOUIS, MO.

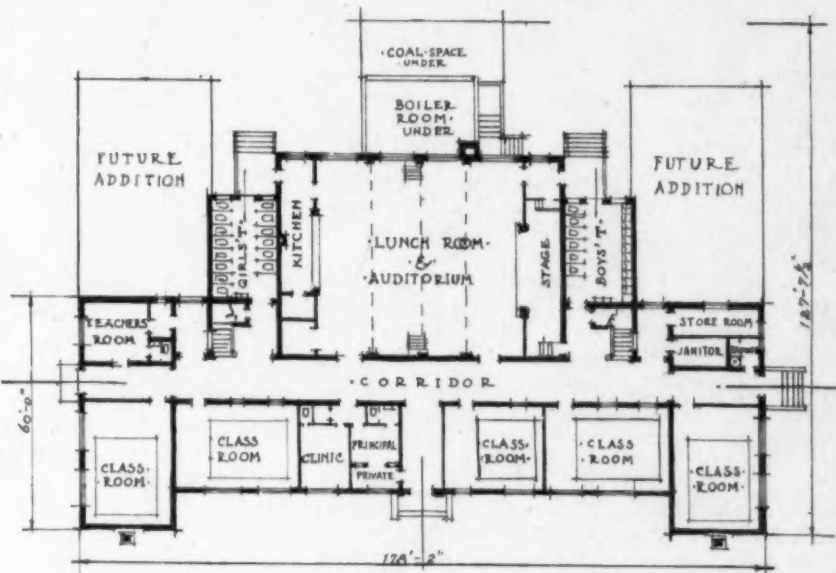




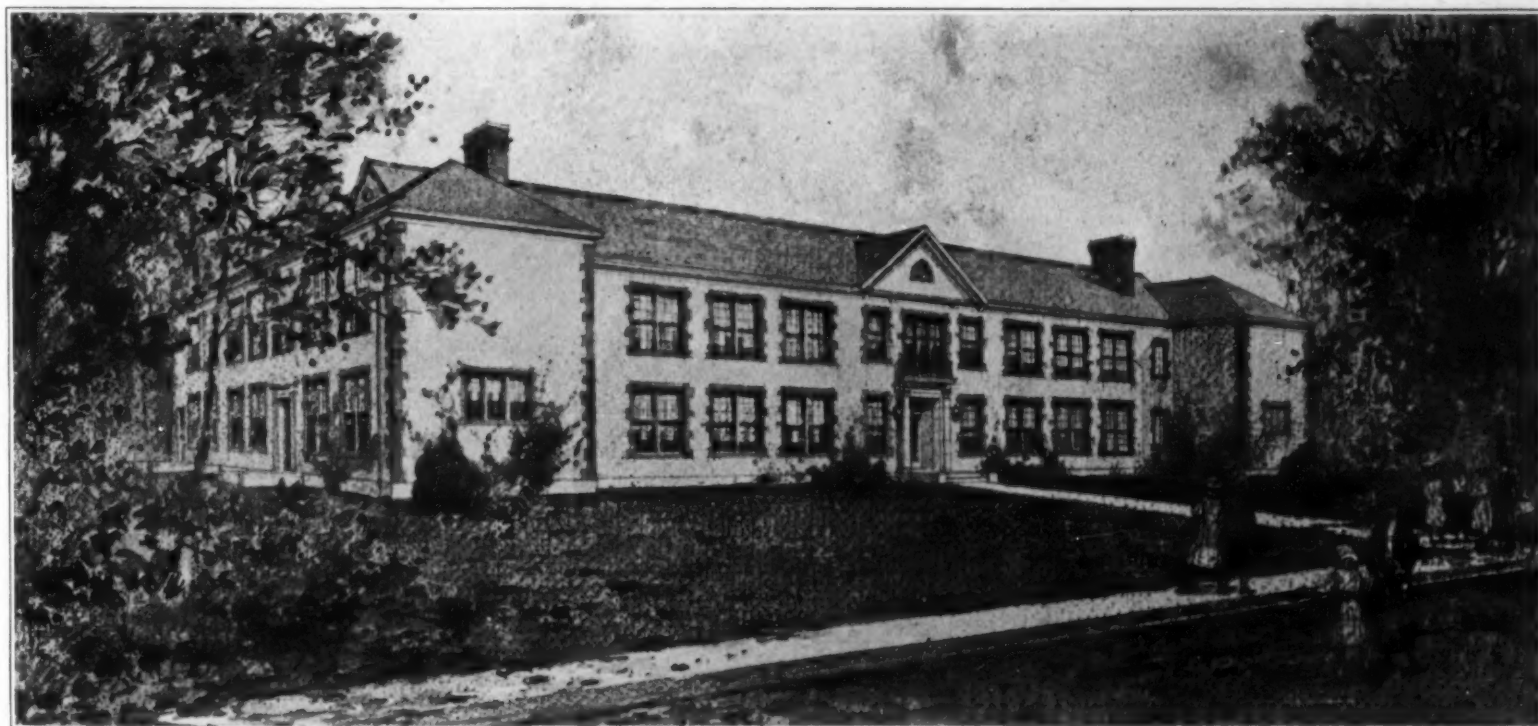
THE NORTH HIGH SCHOOL, DALLAS, IS SIMILAR TO THE FOREST AVE. HIGH SCHOOL, BUT MAINTAINS ITS OWN INDIVIDUALITY.



SECOND FLOOR PLAN
Scale 1/8" = 1'-0"
MT. AUBURN SCHOOL



FIRST FLOOR PLAN
Scale 1/8" = 1'-0"
MT. AUBURN SCHOOL



A DOMESTIC SIMPLICITY ADDS TO THE CHARM OF THE MT. AUBURN SCHOOL, DALLAS, TEX.

Wm. B. Ittner, Architect, St. Louis, Mo.

Health Provisions.

The Dallas high schools are well provided with gymnasiums, showers, and out-of-door space. The most complete physical education quarters, however, are those at the North High School. The main athletic field at this school will include a quarter-mile running track, a hundred yard straight-away, a regulation football and baseball field, four basketball courts, and ample space for an amphitheater seating about 6,000 persons. This school also includes a swimming pool. At all schools, the showers and dressing rooms connect directly both with the gymnasiums and grounds, an arrangement which adds materially to the ease of administration of the physical education activities.

Standardization.

As the curricula, types of organization, and conditions generally were similar in the three schools, it was considered a point of economy to standardize certain facilities such as the auditoriums, libraries, study-halls, lunchrooms, classrooms and the commercial groups.

Each auditorium has a normal capacity of 1,200, and forms the main axis of the building, thereby receiving maximum natural light. The abundance of natural lighting and ventilation of the auditoriums, together with their conspicuous placing and complete equipment make them the most attractive quarters in the building.

Unusual foresight has been shown in the planning of the libraries. Although these vary in capacity from 75 to 150 students, they are similar in design, are centrally located on the second floor, and open directly into spacious study halls, each accommodating 120 students.

Lunchrooms, with complete community kitchens and of sufficient size to serve half the total enrollment of the school at one time, are installed on the ground floor. These are easily accessible to the gymnasiums, home economic groups and auditoriums.

Although the commercial groups are as complete as those of our large comprehensive high schools in the middle west, shop facilities in the Dallas high schools are not as extensive as in many of our other industrial cities. The facts that students' interests in the sciences, commercial and practical-arts subjects over-balance those of the mechanical trades, and that the majority either prepare to enter advanced institutions, or commercial positions may be the chief causes for the shop limitations.



DETAIL OF FRONT ENTRANCE OF THE FOREST AVE. HIGH SCHOOL, DALLAS, TEX., SHOWING THE EFFECTIVENESS OF THE SIMPLE DESIGN.

The schools are well provided with shops for wood-working, wood-turning, mechanical and freehand drawing. And considerable foresight has been exercised in making provision in the plans for shop extensions whenever desired. The commercial groups include quarters for bookkeeping, banking, typewriting and stenography. Most of these rooms are more generous in size than classrooms. All are located on the ground floor.

The home economics quarters have the usual subdivisions of cooking and sewing. Guest dining-rooms connect with the cooking laboratories and private fitting rooms with the sewing rooms. A lecture room and an arts and crafts shop are also included in the group. The freehand drawing rooms, however, are located on the second floor, and in the Forest Avenue on the third floor.

An interesting feature in connection with the art quarters is the widened and top-lighted corridor between the auditorium and the library,

making of it, in reality, the art gallery of the school. There is need in all schools for adequate and well-lighted space of this kind. The arrangement at Dallas serves admirably as an example.

There has been some discussion on the pros-and-cons of lecture rooms in connection with laboratories in high schools. In Dallas all the laboratories open "en suite" with lecture rooms and instructors' offices. But the lecture rooms are of classroom size, open into the main corridor, and can be used in part or altogether for academic work, if it is so desired.

The classrooms, uniformly 21' 0" x 23' 0", are planned for classes of thirty pupils. In the Forest Avenue, however, four of these have been expanded (23' 0" x 36' 0") for the use of larger classes. All are unilaterally lighted.

There are no wardrobes in any of the buildings. Lockers, sufficient in number for all pupils, are installed in locker rooms on the ground floor, and in alcoves of secondary corridors on floors above. Toilets are installed "en stack" on each floor in correlation with lockers.

General space has been allowed for administration quarters. A general office and waiting room, office with supply space for principal, teachers' rest and work rooms are provided in addition to the usual space for the custodian.

No Housing Shortage.

It is obvious that Dallas is not suffering from housing shortage as far as its high schools are concerned. The total accommodation in the study, work and recreation quarters of the three schools is as follows:

Forest Avenue.....	1916
Oak Cliff.....	1311
North High.....	1402

With a total accommodation of 4,629 in the three schools, this city has planned more efficiently than most cities for its immediate future. The buildings represent a cost of \$1,162,000, which is considerable, to be sure, but which, when viewed in the light of returns on investment reduces itself to a point of wise economy.

Just a Word About Ventilation.

There has been a growing sentiment among school authorities in southern cities in favor of the elimination of fan ventilation in school buildings. This is brought about by reason of



THE AUDITORIUM OF THE FOREST AVE. HIGH SCHOOL, DALLAS, TEX., AND OF THE NORTH HIGH SCHOOL, ARE UNUSUALLY WELL EQUIPPED AND WELL LIGHTED.

(Concluded on Page 127)

Space Requirements for Home Economics

Samuel A. Challman, State Inspector School Buildings and Sanitation for Minnesota

Among pre-vocational as well as vocational subjects in the school curriculum, there is none more firmly established than home economics. To the girl it is her one pre-eminently practical subject. Every girl that aspires to a home, when she reaches womanhood, needs training in home making, not always because she will use the technique in cooking and sewing which she acquires, but more especially because she needs to know how to manage a home advantageously. Poets may be born, but home makers are made. They are made in good homes as well as in good schools. Either supplements the other but never wholly supplants it.

We have come to recognize the validity of the obligation of the school for training in home duties and have sought to make the physical conditions as satisfactory as has been possible with our somewhat hazy notion of what ought to be taught.

To begin with, we introduced the class to a room or two in the basement and we heard very little, if any, protest from those in charge as to the undesirability of this location. Evidently those who managed the introduction were glad to obtain any place, even though it was below the ordinary level, usually considered desirable for instructional purposes.

Now and then some one would clamor for more light and better ventilation, and as a result artificial illumination and some device for ventilation would be provided. It was in many places, and still is in a few, difficult to make some people understand that human beings, while living, are entitled to remain on top of the ground, especially during the years they are acquiring an education. If they desire to bury themselves, after they have attained majority, they ought to be generous enough to withdraw without insisting upon company.

Basement Rooms.

Basement rooms, or any rooms with a floor level below grade are never as cheerful and seldom as convenient as rooms on floors above grade. Homes, even in flat buildings, ought not to be located in basements, and training for homes above ground ought, certainly, not be given in rooms partly below the surface. Conditions for heating and ventilation are not as good in basements, except as increased cost for installation and upkeep, as they are above ground.

The view from the windows, even though a sufficient glass area for adequate lighting may be obtained, lacks the attractiveness and the interest that comes from looking at objects from a level or slightly above the level. Even the sky loses some of its charm from a hole in the ground.

The usual defense for basement rooms is that they can be built for less money than rooms

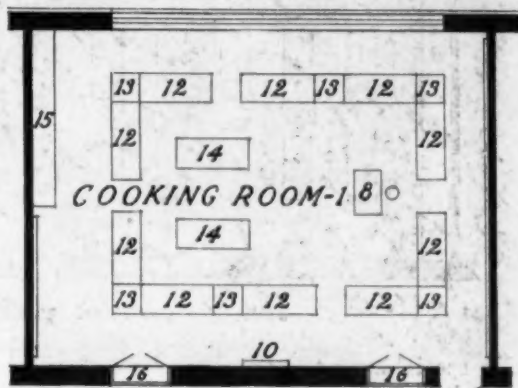


FIG. 2. HOLLOW SQUARE ARRANGEMENT FOR COOKING ROOM.

above ground. This contention has, however, been proved untenable in a great many instances, and it is a question if they are not actually more expensive than rooms above ground, when the excavated dirt is not needed for filling.

At any rate the economy of construction would be so small, even if it were in favor of the basement, that, when light, ventilation, cheerfulness, convenience and other possible factors are given proper consideration, the saving would not be worth mentioning.

Location of Department.

The home economics department is by virtue of its importance in the school curriculum clearly entitled to as good quarters as any traditional school subject. Whether it should be on the first, second, or third floors will depend largely on the school organization, but it ought to be located so as not to require unnecessary stair climbing on the part of the pupils.

Except in very large buildings, it is unwise to distribute the rooms on different floors or in different parts of the building. Ordinarily all the rooms of the home economics department should be en suite.

Lighting of Rooms.

The cooking and sewing rooms require as much light as the ordinary classroom, or a glass area of not less than twenty per cent of the floor area. Much more than this can not be advantageously secured with a ceiling height of twelve feet, unless the room is bilaterally lighted.

For sewing a northern exposure seems to be preferred by teachers of home economics, owing to the fact that light from this direction is well diffused and remains comparatively constant throughout the day. Such a condition implies that only unilateral light will be acceptable in sewing rooms.

Artificial illumination is also essential in these rooms, since in most communities they will be utilized for evening classes, and at times such illumination will be needed even during part of the day. Only the most approved modern type of lights should be used and these should be located to advantage. There are several types now on the market and the subject has been given careful consideration by illuminating engineers.

Sizes of Rooms.

In most instances when rules have been made or directions have been given, by federal, state or local authorities, these have defined the sizes of rooms by prescribing a minimum number of square feet of floor area for the entire department.

The architect has then been expected to divide this area into two or more rooms, generally without knowing the character of the equipment needed for the rooms or the number of pupils for whom they should provide. When the

courses first began to be given the equipment was crude and generally made locally. The number of pupils assigned to one teacher frequently ran as high as twenty-four, and gradually this came to be an accepted maximum standard.

In time school furniture companies began putting out such equipment as the conditions seem to warrant, and at present we have a long line from which to choose. Most of the furniture on the market is the result of careful study on the part of the designer and meets our present demands in a fairly satisfactory manner.

We need, however, to approach the problem from a pedagogical viewpoint and determine the number of pupils that can be satisfactorily taught at one time. Having fixed this number, we are then ready to consider the matter of desirable equipment and its arrangement. With these two factors given, the sizes of rooms becomes merely a matter of computation.

For the purpose of determining both of these factors Miss Wylie B. McNeal, Supervisor of Home Economics for the Public Schools of Minnesota, made an inquiry several months ago as to number of pupils and types of equipment which would be most desirable.

This inquiry was directed to twenty-six teachers and supervisors of home economics distributed over twelve states. The replies show that in no instance was the desirable number of pupils placed higher than twenty. In fact the majority favored sixteen.

As to the arrangement of tables in the sewing room there was a unanimity of opinion that these should be so placed that every pupil would face in the same direction, with the windows of the room to the left of each pupil while at work.

For the cooking room three plans of arrangement of the equipment were advocated. These were the hollow square (see fig. 2), the unit desk with a sink between two units (see fig. 3), and the unit kitchen in which a sink, a stove, a cabinet and a table complete the equipment for a group of four pupils (see fig. 4).

Using a maximum of twenty pupils as a standard number for whom to provide, several diagrams of floor space have been worked out with Miss McNeal's cooperation. Any one familiar with school organization realizes that in most of our schools the quota will not be full in every class, and for this reason it did not seem wise to reduce the equipment to as low a basis as sixteen pupils.

The economy necessary to maintain our schools on a satisfactory financial basis also prompted the selection of a standard which would not unnecessarily increase the number of classes in a school system which already has a number of small classes to care for in other subjects.

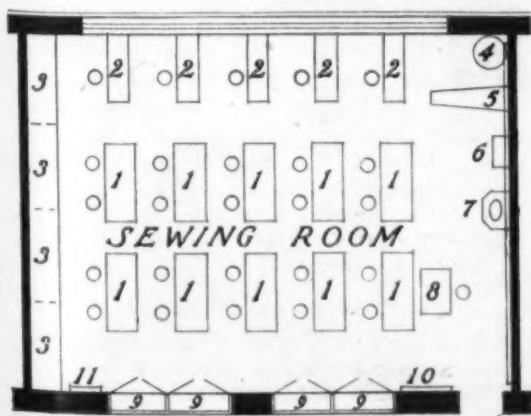


FIG. 1. SIMPLE TYPE OF SEWING ROOM.

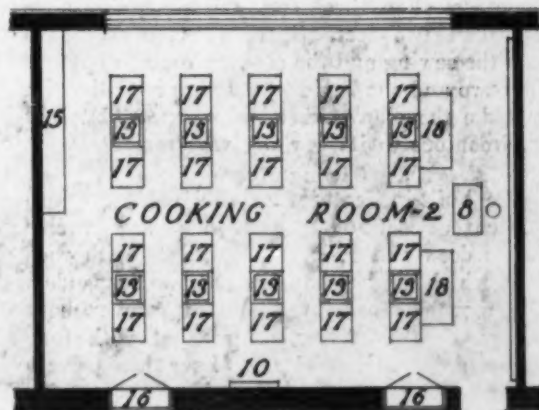


FIG. 3. UNIT-TYPE ARRANGEMENT FOR COOKING.

But it also has its disadvantages in not affording the teacher an easy means of seeing the work of the pupils such as is possible with hollow square; in necessitating the placing of supply tables at one end of the room; and in increasing the cost of plumbing over either of the other types.

It is preferred by some teachers for advanced classes in particular, as each girl has an opportunity to work independently on her own problem. With an added kitchen for individual preparation of meals, this type has the endorsement of Margaret Johnston, State Supervisor of Home Economics for Wisconsin; Florence Fallgatter, Supervisor Home Economics, Duluth, Minnesota Public Schools; Edna P. Amidon, Teacher Home Economics, Albert Lea, Minnesota Public Schools, and Betsey Madison, State Supervisor of Home Economics for State Board for Vocational Education, Frankfort, Kentucky.

The Unit Kitchen.

This type is a protest against the other two types, as they represent conditions created by pedagogical considerations. This type seeks to make conditions in school as near like those of the home as possible. No generally accepted arrangement of the equipment for unit kitchens can yet be said to prevail. Leaders in home economics work differ as to the type of equipment and the relative positions of the articles that go to make up this equipment.

For the purposes of the diagram shown in figures 4 and 9 a unit kitchen requires a sink, a stove, a table, and a kitchen cabinet represented by numbers 20, 21, 22, and 23. There are five unit kitchens shown separated from each other by an imaginary line. In each of these there is sufficient space for four girls to work together. The actual space allotted to each kitchen is nine feet four inches by nine feet or eighty-four square feet.

The teacher's desk, a supply table and a refrigerator occupy a space equivalent to that of one kitchen. A cupboard similar to that used in the other kitchens is likewise shown. Space may also be had for a built-in towel closet, though this happens to be omitted in the diagram.

A study of this plan will show that the sinks and the stoves have been ranged along the walls. This has been done for two reasons: first, to get plumbing pipes and gas pipes in positions where they may be easily accessible and still be out of the way, also to get vent pipes for gas stoves to run up along the wall and connect with horizontal pipes near the ceiling, which in turn connect to vent flues; second, to get the full benefit of light from the windows by putting stoves with ovens below and sinks along the windows, since these in a school building are ordinarily placed about three feet above the floor.

The tables and kitchen cabinets are movable furniture and are consequently better adapted to positions out in the room. A central aisle four feet wide gives ample space for pupils to pass each other when classes change or during the work. The stools shown may, of course, and will be used in other places than those indicated, and will most likely be put under the tables when not in use.

While with the hollow square and the unit desk it is highly desirable that there should be in addition to the regular equipment a small kitchen, in which complete meals may be prepared, this is obviated by the unit kitchen plan, as one of the unit kitchens may be used for this purpose.

Owing also to the storage capacity of the kitchen cabinets a separate storage room may be eliminated. Considering the advantage thus gained a unit kitchen plan presents in reality

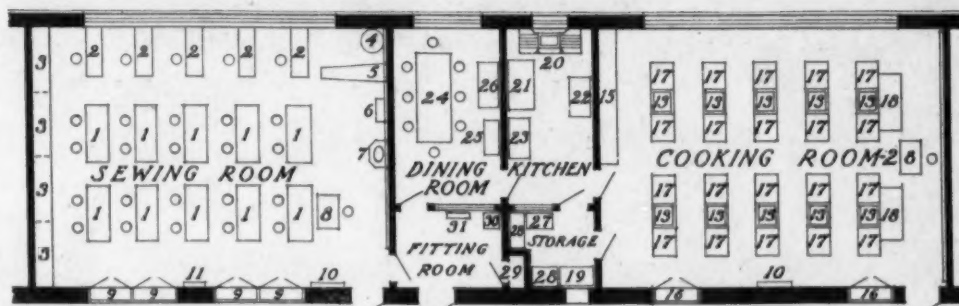


FIG. 7. DOMESTIC SCIENCE GROUP WITH MODEL KITCHEN AND DINING ROOM, FITTING ROOM AND STORAGE SPACE.

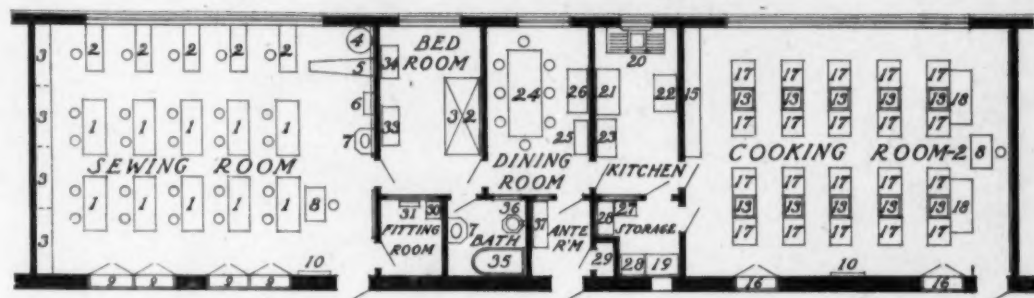


FIG. 8. DOMESTIC SCIENCE GROUP WITH PRACTICE HOUSEKEEPING SUITE.

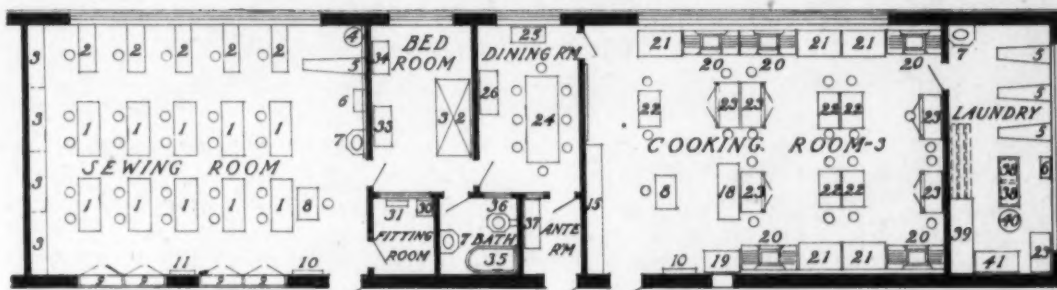


FIG. 9. GROUP SAME AS FIG. 8, WITH LAUNDRY.

Equipment Schedule.

1. Sewing Table	60"x24"	27. Table	30"x18"
2. Sewing Machine	51"x18"	28. Shelving 23" and 18" wide.	
3. Compartment Lockers	268"x18"	29. Closet	18"x36"
4. Fitting Stool—diameter	24"	30. Fitting Stand	18"x18"
5. Ironing Board—59" long, 18½" wide tapering to	10"	31. Movable Cheval Mirror	20"x54"
6. Gas Plate	24"x12"	32. Bed	7' 0"x3' 3"
7. Lavatory	28"x21½"	33. Dresser	42"x20"
8. Teacher's Desk	36"x23"	34. Dressing Table	38"x19"
9. Garment Closet	48"x12"	35. Tub	54"x30"
10. Bulletin Board	36"x42"	36. Water Closet	18"x24"
11. Scissors Cabinet	24"x36"	37. Settee	54"x18"
12. Two-pupil Table	60"x24"	38. Wash Tubs	54"x26"
13. Sink	24"x24"	39. Drier	84"x24"
14. Supply Table	60"x24"	40. Electric Washer	24"x24"
15. Cupboard	144"x18"	41. Storage Cabinet	50"x22"
16. Closet	48"x12"		
17. Unit Table	30"x24"		
18. Supply Cabinet	60"x24"		
19. Refrigerator	40"x23"		
20. Sink	64"x27"		
21. Stove	50"x28"		
22. Kitchen Cabinet	40"x26"		
23. Table	42"x24"		
24. Dining Table	96"x36"		
25. Serving Table	36"x18"		
26. Buffet	48"x24"		

Room Schedule.

Sewing Room	31' 4"x23' 0"
Cooking Room—1	31' 4"x23' 0"
Cooking Room—2	30' 6"x23' 0"
Cooking Room—3	33' 0"x23' 0"
Dining Room	9' 6"x15' 6"
Storage—1	9' 6"x 7' 0"
Storage—2	7' 9"x 7' 0"
Kitchen	7' 9"x15' 6"
Fitting Room—1	9' 6"x 7' 0"
Fitting Room—2	5' 9"x 7' 0"
Ante-room	5' 6"x 7' 0"
Bath Room	7' 3"x 7' 0"
Bed Room	9' 6"x15' 6"
Laundry	9' 6"x23' 0"

the most economical use of floor space, as its 759 square feet of floor area can be made to serve the same purpose as either the hollow square or the unit desk with its additional kitchen and storage room. In the case of the hollow square this floor area amounts to 894 square feet and in the case of the unit desk to 876 square feet.

The unit kitchen plan is being used for both elementary and advanced classes in a number of schools and has some very strong advocates. They are not committed, however, to the particular arrangement shown in the diagram.

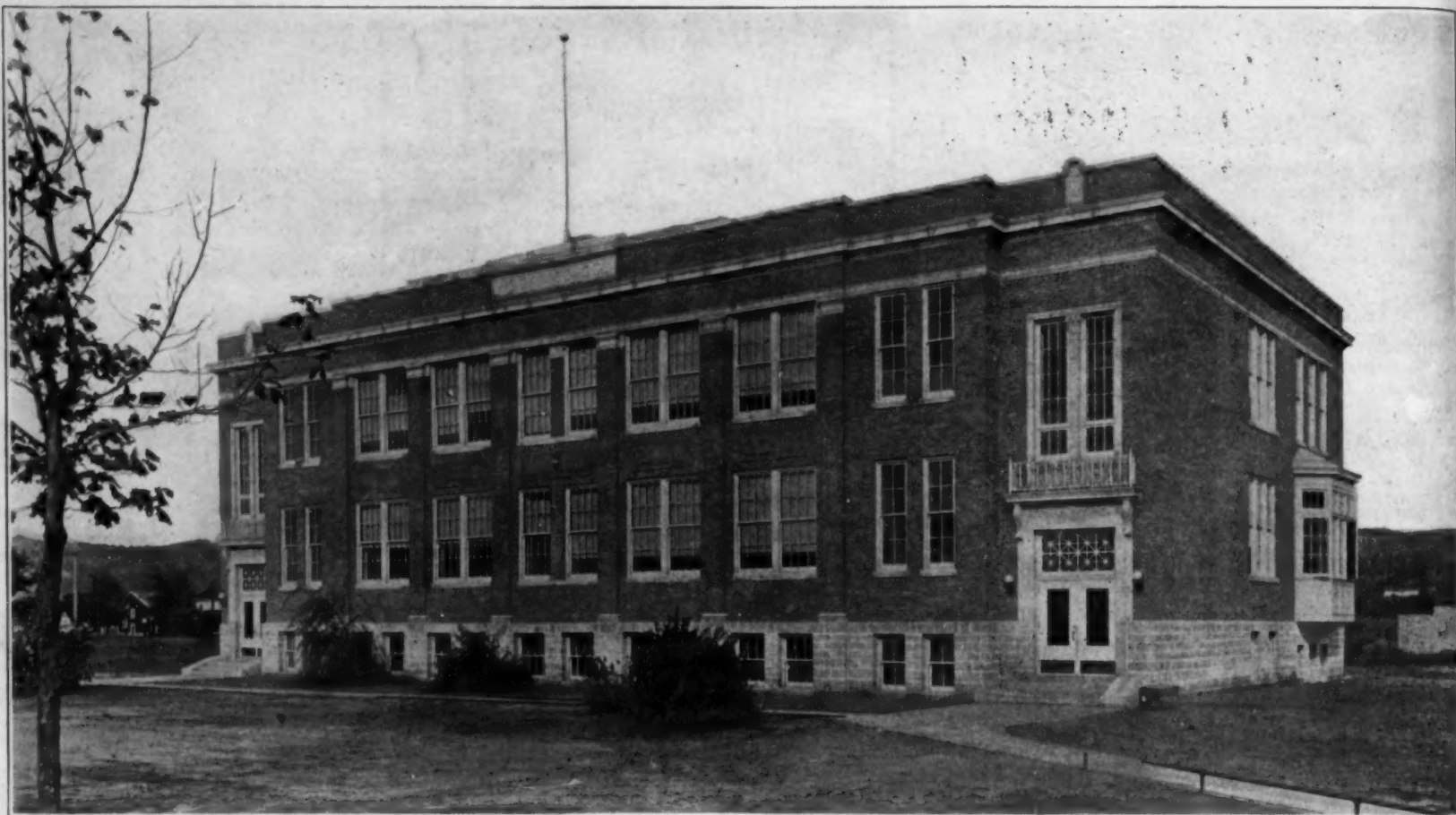
Among these may be mentioned Anna E. Richardson, Chief of Home Economics Education Service of the Federal Board for Vocational Education; Alice M. Loomis, State Super-

visor of Home Economics for the Department of Vocational Education, Lincoln, Nebraska; Daisy A. Keigel, Director Home Economics Department of Stout Institute, Menomonie, Wisconsin; Lillian Peek, Assistant Director of Home Economics for State Board for Vocational Education, Austin, Texas; Mabel Hollis, Special Supervisor of Home Economics for Department of Vocational Education, Fargo, North Dakota; S. Helen Bridge of Teachers' College, University of Nebraska, Lincoln, Nebraska; and Frances R. Kelley, Supervisor of Home Economics, Minneapolis, Minnesota Public Schools.

Home Economics Departments.

By combining a sewing room with a cooking

(Continued on Page 127)



HOGAN SCHOOL, LA CROSSE, WIS. Otto A. Merman, Architect.

A COMPLETE GRAMMAR SCHOOL BUILDING.

The Hogan School at La Crosse, Wis., presented in its planning an opportunity and a problem. In July, 1920, the old Hogan School was destroyed by fire leaving a portion of the walls and all of the stone foundation, for a space of six feet above the grade standing intact and in good condition. The old building had been an eight-room structure. The board of education decided that the new structure should occupy the location of the old and ordered the architect to use the old formulation, except for such extension as might be absolutely unavoidable.

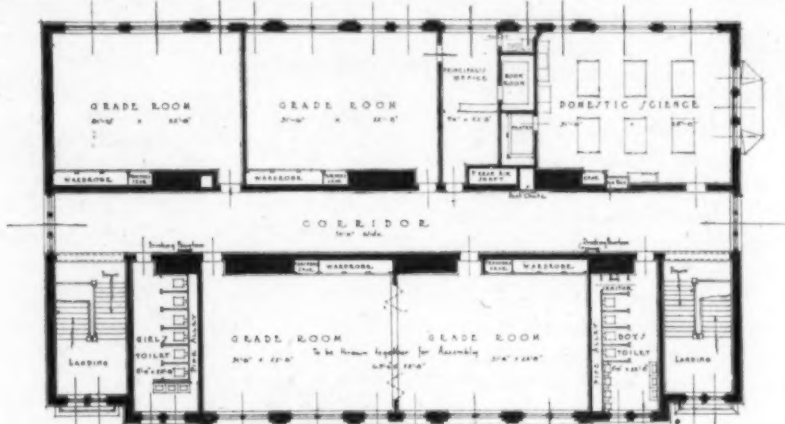
The new twelve-room Hogan School is of solid brick walls and reinforced concrete floor construction and was built upon the foundation remaining of the old building, after the stone work had been redressed. While the new building is classical in design, the simplicity and inexpensive manner in which the various materials and surfaces have been treated is a credit to the development of good schoolhouse design. All ornamentation in the design has been reserved at each of the entrances, and where the

same is easily observed by the students. The brick used on the exterior of the building is rough texture light cream and buff vitrified brick, while the cut stone work is of buff Bedford stone.

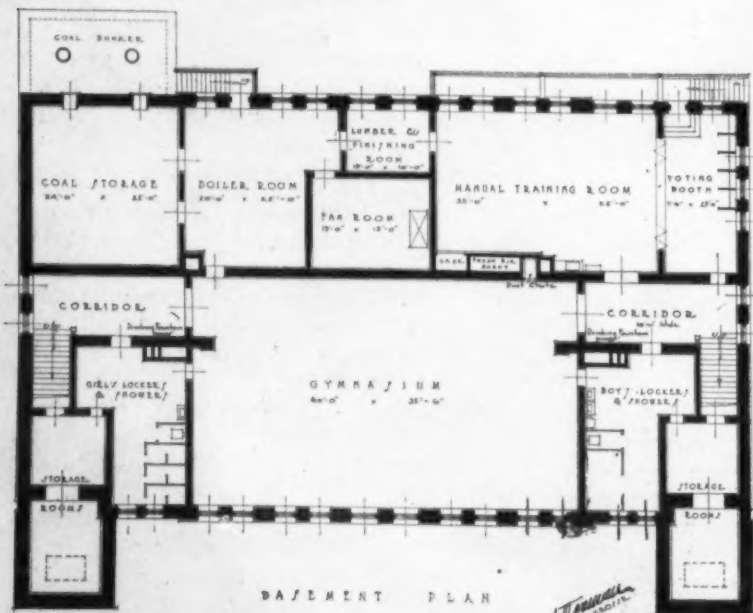
The plans have been most carefully studied to avoid every cubic inch of waste space. The

basement, which is partly below grade, houses the manual training department, city voting booth, boys' lockers and shower at one end, boiler, fuel, heating and ventilating apparatus room, girls' locker and toilet rooms at the other end, with the gymnasium between. The boys' and girls' departments are entirely separated.

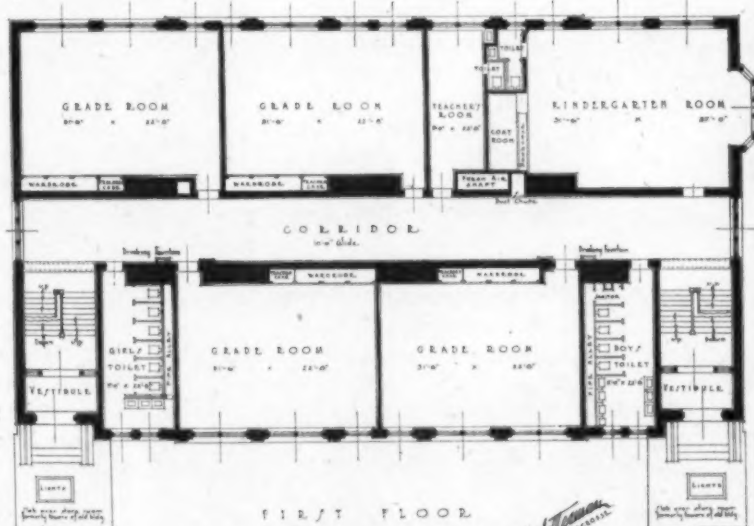
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SECOND FLOOR PLAN, HOGAN SCHOOL, LA CROSSE, WIS.



BASEMENT PLAN



FIRST FLOOR

FLOOR PLANS, HOGAN SCHOOL, LA CROSSE, WIS. Otto A. Merman, Architect, La Crosse.

Schoolhouse Acoustics

M. C. Rosenblatt, Mechanical Engineer, Philadelphia, Pa.

English scientists have lately discovered that the little flying mammal, the bat, has the acute faculty of being able to see without its eyes, that is to say: although totally blind has the instinct of being able to dodge any obstruction in its path of flight and but very rarely, indeed, strikes even with the tips of its wings these obstructions.

This mysterious feat is accomplished, as the scientists have determined, by a sixth sense,—a sense of acoustics,—so to speak. The bat while in flight issues a very high pitched and shrill note, a note of greater frequency than the human ear is capable of assimilating. This sound traveling at about eleven hundred feet a second speeds ahead of the bat in its flight and striking against an object is reflected back and absorbed by the very delicate hearing posts of the little mammal permitting him to subconsciously design the path of his flight without fear of collision. This phenomena points a way to man to simulate these characteristics for his own convenience.

Many of our schools are defective acoustically. Schoolrooms lose efficiency when one of the fundamental potentialities in the transmission of intelligence is minimized. No more important function exists than the distinct and comprehensive hearing of the spoken word.

The subject of acoustics as pertaining to schoolrooms should be given all of the consideration it deserves. The methods of distributing both heat and light have been extensively improved upon in the last decade and a considerable amount of thought applied to these mediums; whereas sound, a probably more important medium, has been left to its own destiny.

The Science of Sound.

Acoustics is the science of sound. It is the study of sound and the application of its physiological characteristics to problems which surround us in our highly specialized existence.

Among laymen little is known about sound and its phenomena except as it impresses the actual senses; but among scientists, physicists and engineers most of its mysteries have been determined. An understandable knowledge exists which has the faculty of controlling sound under given circumstances. We often hear the expression that this or that auditorium has poor acoustic qualities meaning that hearing is not distinct and that the ear does not assimilate the effects of speech with accuracy. And usually that is the end of it. No inquiry is made as to why the acoustics are faulty and whether they can be corrected.

In this country millions of dollars are spent yearly for the construction of school buildings containing auditoriums, many of which, when completed are so acoustically inefficient. With poor conditions for hearing any auditorium is not a complete success no matter how much its cost or how elaborate its scheme. In school auditoriums is this especially true where poor acoustics is directly responsible for inattention and fatigue of teachers.

Some striking acoustical defects are present in school auditoriums in this country. In one of the largest high school buildings in Philadelphia there is a rather large auditorium having a volume of over 150,000 cubic feet. This auditorium is of rectangular floor plan and has a balcony projecting out from the side and rear walls. It is a very plain room having no curves of any kind and with a flat hung ceiling. All of the surfaces are of plaster on metal lathe with the exception, of course, of the doors, windows, and floor. This auditorium is practically useless from an acoustical standpoint.

The writer was called in to examine the room and found that excepting for the first few rows of seats, hearing was very indistinct and jumbled in all parts of the room including the balcony. The effect upon the auditory nerves was extremely depressive and the auditor was continually uneasy while speech was uttered. However, by far the worst effect was noticed during singing when it was found that while a certain single note was being issued upon the stage, notes of different pitch were audible with augmented intensity in parts of the room. In three particular zones adjacent to the rear corners of the room and under the balcony notes practically a half octave lower than those issued were heard.

Acoustical Treatment.

Practically all prominent architects today are giving this matter of acoustics more and more attention realizing that an acoustical failure is a reflection on their reputation. Many building owners and committees are demanding better service from this standpoint.

One architect writes that several years ago he first took up the subject of acoustics in a serious manner and in constructing a school auditorium found it advisable to use certain acoustical treatment. He states "these results have led the writer to make acoustical treatment a standard part of auditorium construction". The writer has before him a number of communications from school directors, the contents of some of which are interesting. One official says, "we have two large school buildings each with an auditorium and seating capacity of 1000. These buildings are all of concrete construction with very high ceilings and we found the acoustics very bad, in fact, they could not be used with any satisfaction in our regular day school work when the auditoriums were not filled to capacity."

He further states that acoustical treatment has been applied to both of these auditoriums, and adds, "we now find the conditions of both of these auditoriums very satisfactory for our daily regular use". In another instance a director of one of the largest high schools in the country writes, "The auditorium in this building was treated acoustically and all that was promised by the engineers seems to have been realized and we have no more complaint from our audiences on the score of not hearing".

Let us consider briefly some of the causes of the defects which most commonly exist in our present day auditoriums and attempt to arrive at some medium to relieve this condition. Sound is the natural effect upon the tympanum of the ear, the auditory nerves and the brain, of a wave set up in the air by some source. This wave leaves the source of sound on every side and travels out in every direction at a speed of approximately 1100 feet per second.

The sound wave transmits the energy of the source to the air and is capable of doing work. The wave spreading out in every direction is continuously enlarging and acting upon more and more air, the medium of transmission.

How Sound Travels.

If a sound is issued in the open air, the wave formed will travel on and on becoming weaker and weaker until it can no longer be distinguished by an ear in its path. The sound produced by the voice of average intensity ceases to be audible at about 275 feet. If we should interpose at some point nearer the source than 275 feet a surface, some of the air waves issued will impinge upon this surface. The effect of these waves upon such an object will depend upon the character of the object itself.

If it is a very porous substance the wave will pass through it and continue its motion on the other side with but slight diminution of its energy. If the surface is solid but flexible the wave will set the surface into vibrations corresponding to its frequency and the vibrating surface will in turn set up a corresponding wave on its opposite side. If the surface is solid, hard and rigid the sound wave striking upon it will, for most part, be reflected from the surface and continue back toward the source.

A similar condition exists when an echo is heard. Sound travelling away from the source strikes upon some intervening object such as the side of a cliff and is reflected back to the ear. The ear receives the direct wave almost instantly and later receives the reflected wave of the same source. If the echo is heard one second after the initial sound the reflecting surface must be approximately 550 feet from the source or the ear, as the case may be.

All surfaces upon which sound waves may strike absorb a certain amount of the energy of the wave but practically no surface has the property of absorbing all of the energy. It therefore follows that some proportion of the initial energy is reflected back and, in itself, acts as a new source of sound. If a sound is issued in an auditorium for instance, the walls, the ceiling, the floor and other exposed surfaces serve to absorb some of the waves which come into contact with them and reflect a quantity of the energy. This reflection of sound by various surfaces is the nucleus of acoustical conditions.

Our present construction is tending toward harder and more rigid interior surfaces and with it a greater capacity for reflecting sounds. When a sound is issued within an auditorium it is reflected from one surface to another losing at each impact a definite amount of its energy but nevertheless impressing the ear of the auditor a number of times in its reflected path about the room before it has finally lost all its energy or has become inaudible.

The ear receives an impression of the sound by means of a direct path from the source and then subsequently and rapidly receives a great number of less distinct impressions due to the reflected waves. This phenomena operates to extend the length of time that any particular note or syllable can be heard. If this length of time is excessive, it often occurs that the direct wave from a second note or syllable enters the ear before the impression of the first note has ceased. The result of this will be a running together of successive notes or syllables to produce indistinctness. The length of time that sound will endure after the source has ceased to function is spoken of as the duration of audibility.

Duration of Sound.

In certain known instances this duration of audibility has been computed to be as high as twelve seconds which means that the ear is capable of hearing the same sound twelve seconds after the source has become quiet. You can readily see how such a condition produces great confusion, indistinctness and discomfort. A deliberate speaker will issue about five average syllables per second. Nature has provided a "factor of safety" of two in the ear. That is, the ear can hear without confusion about ten syllables per second. Therefore, it can readily be understood that if an auditorium has a duration of audibility of more than two seconds, confusion of hearing will result.

The ideal time of audibility of an auditorium varies greatly. It depends upon the uses to which the auditorium is put, the nature of the

room, etc. The best time of audibility is different for speech than it is for vocal music and different for piano music than for orchestral, etc. Oftentimes it is found that an auditorium has a very high time of audibility when empty which falls off very rapidly as the audience increases in size and becomes practically normal with an average audience.

The proportions of the room must be considered, the floor area as compared with the ceiling height, and a great many other details. In general the problem is fairly simple but the great many acoustical idiosyncrasies make it extremely complex. Very often the most trivial detail will change the entire acoustical effect of an audience room.

Besides the duration of audibility, or time of reverberation as it is often called, refraction of sound waves, diffusion, interference, a lack of resonance, concentration of sound energy due to curved surfaces and corners, pockets, dead spots, etc., must be reckoned with. However, most usually it occurs that if the duration of audibility can be reduced to a proper time all the other defects will automatically cease, since they are to a more or less extent, functions of duration of audibility.

Duration of audibility in an audience chamber is determined in several different ways. It can be mechanically obtained by the use of a microphone set of special design, but this method is not satisfactory because ideal conditions necessary for accurate results are rarely possible of attainment.

The most satisfactory method and the one containing the least error is the analytical one in which duration of audibility is actually computed mathematically either from the plans of the room or from data obtained in the room after completion. This analytical method has the advantage of the fact that the time of audition can be predetermined, that is, can be obtained prior to the erection of the auditorium.

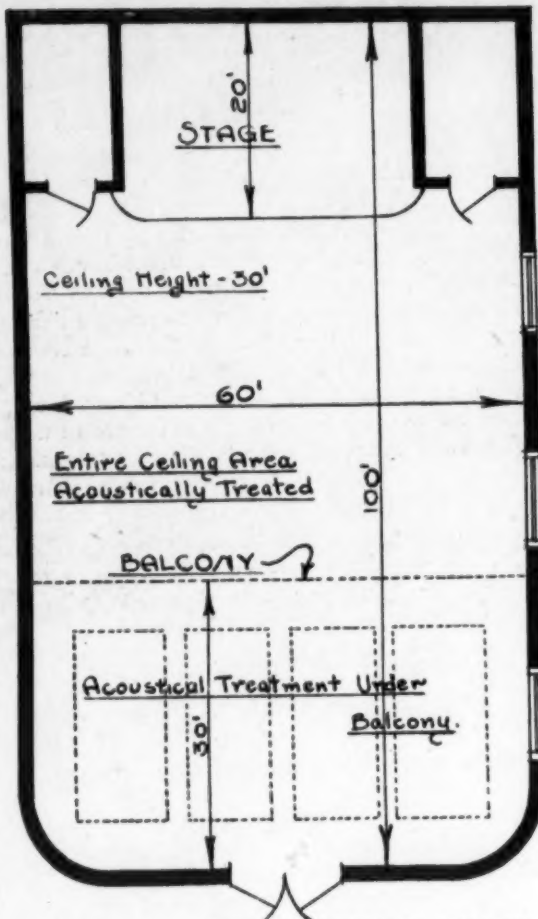
The mathematics involved in this analysis is of a high order and a thorough knowledge of calculus and theory of limits is necessary. After the time of audibility is determined for any given auditorium it must be differentiated in consequence of various audiences. The duration of audibility obtained with an average audience present is the one most usually considered. If this time of audibility is considerably higher than the ideal time for the particular auditorium, changes to the interior must be made in order to secure high acoustical efficiency and good conditions for hearing.

In most instances a high time of audibility is directly due to the non-absorbing qualities of the interior surfaces of the room. These surfaces reflect too much of the sound striking upon them causing the sound to endure for too long a period. Therefore, in order to obtain good acoustical results it is necessary to replace or surmount some of the reflecting surfaces with surfaces which have the property of absorbing a great amount of the sound striking upon them. The surfaces to be replaced with absorbing materials must be scientifically chosen or else the effect will be nullified or discounted. Various combinations of materials have been used as absorbing surfaces but possibly the best of these is matted hair felt about one inch thick covered with a tightly stretched membrane of light canvas.

When properly decorated or painted these materials serve a purpose equally as good as plaster, wood or other interior building materials, and are architecturally practical.

Architects Recognize Acoustic Values.

In conclusion it may be enlightening to describe a specific auditorium which has been purged of its acoustical faults. The auditorium described is one in a very prominent high school



PLAN OF AUDITORIUM ACOUSTICALLY TREATED.

building near Pittsburgh which was erected about fifteen years ago. After the structure was completed it was found that dead spots existed and that the acoustics in general were very poor, to such an extent, in fact, that the auditorium was barely usable.

For a number of years nothing was done to rectify this condition because of the lack of necessary funds but several years ago the much needed correction was made. An analysis was made and it was found that the room had a duration of audibility, when empty, of over 7½ seconds. The capacity of the auditorium was 1000 but with an audience of about 700 it was found that the time of audibility was much too high for best conditions, being in the neighborhood of five seconds. It was required to reduce this time of audibility to about one and seventy-five hundredths (1.75) seconds.

A sketch of the floor plan is herewith shown.



PRINCIPAL'S COTTAGE AT THE HOLCOMB CONSOLIDATED SCHOOL, HOLCOMB, KANS.

The curved surfaces in the rear of the auditorium were found to produce "dead spots" on the main floor and in the balcony. Acoustical treatment consisted of one inch of hair felt covered with a membrane of light canvas, which was painted to match the existing plastered surfaces, and applied to all of the ceiling area between the beams and four large panels of the treatment applied to the space beneath the balcony.

A limited quantity of treatment was found to be necessary upon the side walls. A warm air register beneath the balcony was found to convey a rather disturbing noise from the fans in the basement and this disturbance was eliminated by building a reflector around the register which reflected the noise so that it would impinge upon the absorbing surface under the balcony. This application was eminently successful and the acoustics in the auditorium were improved a thousand fold, the room being transformed from one practically useless to one of the highest efficiency.

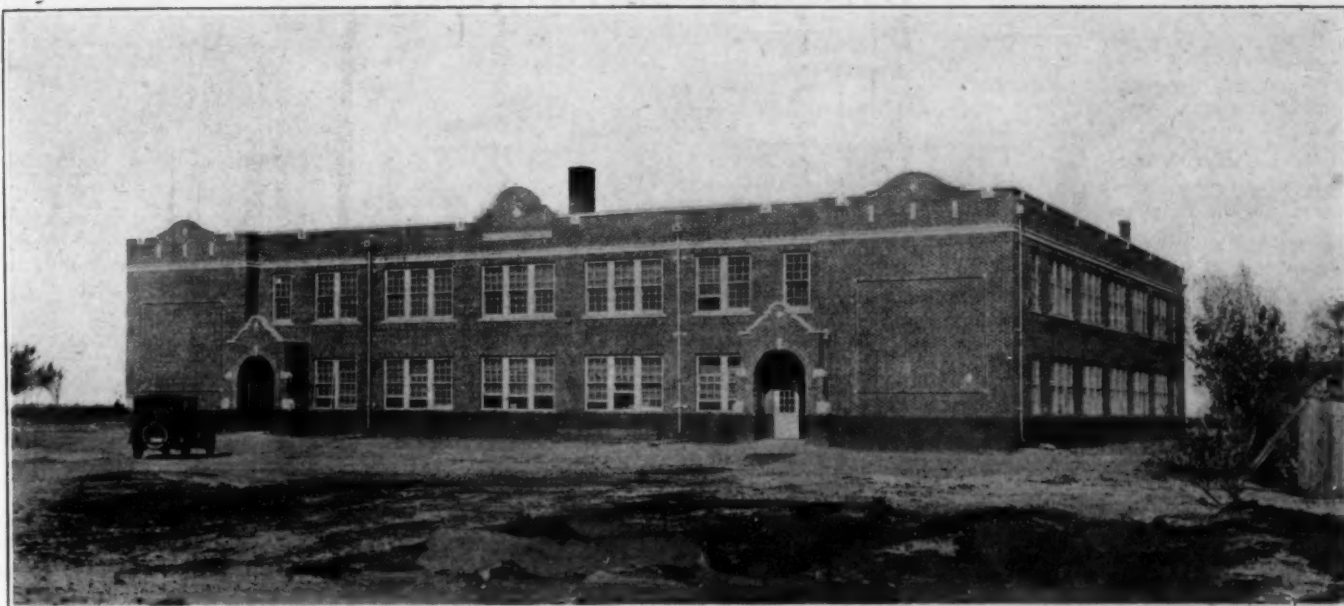
Architects today are beginning to specify acoustical treatment as a standard part of their school auditorium design, realizing more and more that they are doing the community a grave injustice when they do not provide the very best obtainable acoustical conditions. The day is not far off when the acoustics of any enclosure used for assembly will be considered in the light of one of the most important details.

—The school board at Victoria, B. C., is opposing vigorously the proposed legislation whereby aldermen are to be represented in school boards, stating that "such an arrangement would tend to impair and weaken the usefulness of school boards owing to the lack of harmony which would certainly follow."

—The school board at Pittsfield, Ill., has decreed that there shall be no more dance parties in the schools. Also that there shall be no form of amusement that offends any religious or moral scruples that any part of the student body may have.

—At Minneapolis, Minn., under the direction of the Research Bureau, an extended series of ventilation tests are in progress at the Whitney school which will continue during the winter and until June 1, 1922.

These tests will cover a period of approximately forty weeks. Three days a week will be devoted to testing and two tests will be made on each day, a total of two hundred and forty tests. There are six different systems installed in six rooms and there are four readings made in each room during each test. There will, therefore, be 5760 separate analyses, which the Research Bureau believes will enable it to reach some definite conclusions as to the efficiency of the different ventilation systems.



HIGH SCHOOL BUILDING, HOLCOMB CONSOLIDATED SCHOOL, HOLCOMB, KANS.

A Modern Consolidated School, Holcomb, Kans.

E. J. Dumond, Holcomb, Kansas

This article deals with a community school out in the open country where all the school children from an area of 125 square miles are carried to school in auto-busses and where the activities of the school are not confined to the children but include the entire community.

This school owes its origin to the vision of Prof. C. E. Rarick, head of the Department of Rural Education at the Hays, Kansas Normal School. He saw the possibilities of this location for a large consolidated school, and under his leadership a visit was made to the San Louis Valley of Colorado by a number of citizens for a more or less careful study of this type of schools. The Holcomb School is the result of that visit.

The territory has a valuation of over three million dollars. About eighty sections of the land are either now under irrigation or are capable of being irrigated.

Much of the land of the district is owned by the Garden City Sugar Company, seven miles away, a large corporation, and is occupied to a considerable extent by German and Russian tenants. The census shows nearly 500 pupils of school age and the school enrollment runs nearly as high. Holcomb is an unincorporated town with a population of not over 75 persons. There is no other building in town large enough to hold the people so all the religious and community meetings are held in the school auditorium for which it is well adapted.

A Fifteen Acre Plant.

The plant consists of about fifteen acres of land on which are located two school buildings, the garage, the faculty house, or teacherage, and four other residences made from old rural school buildings. Three of these are occupied by the superintendent, the Smith-Hughes agriculture teacher, and the janitor. The fourth was equipped as a dormitory for boys whose homes are outside the district. A three-room house was on the farm when purchased. This is occupied by a family who moved in for school purposes.

On the farm are orchards of apple and cherry trees, large strawberry beds, five acres of alfalfa, barn and pens for feeding projects and plats for agricultural projects carried on by the boys under the supervision of the agricultural department of the school.

The primary building is a six-room structure which housed the entire school before consolidation. It is now occupied by the first three grades of the school and is admirably adapted to that purpose. The gymnasium in this building is used as a playground in bad weather.

The main building, semi-fireproof, is 103x134 feet in dimensions. It has a combined auditorium-gymnasium 53x70 feet with galleries. This

room will seat 750 persons comfortably and, if necessary, 1000 persons can be seated. The classroom floors are concrete. The gymnasium, halls, rest and dressing rooms have mastic floors. There are four modern toilet rooms, two on the first floor equipped with showers, and two on the second floor.

The household science department, a three-room suite consisting of sewing room, cooking room and lunch room and the girls' toilet occupies the entire south wing on the first floor. On the north wing the agriculture and shop room is placed. It is a large double room which contains both woodworking and blacksmithing tools, and the boys' toilet. On the west front of the building on the first floor there are three rooms used for the fourth, fifth and sixth grades.

The second floor is used entirely for junior and senior high schools. The junior high occupies the south wing over the household science department. The senior high has the north wing. The west front contains the study hall, the commercial room and the superintendent's office. The rooms over the dressing rooms at either side of the stage are the principal's office and the girl's rest room. The two school buildings are heated by a vapor system heating plant equipped with two Kewaunee boilers. The water supply is pumped into a storage pressure

tank by electricity from a deep water well whence it feeds the drinking fountains in both buildings. This building cost \$110,000.

Garage and Teacherage.

The garage is a brick building 48x60 feet which supplies ample room for our twelve Reo-busses each having a capacity of 30 children.

Cost of building \$4,500.

The teacherage is 33x60 feet and contains thirteen teachers' rooms each large enough to accommodate two teachers. It has a reception hall, living room, four teachers' rooms and bath room on the first floor. On the second floor there are nine teachers' rooms, library and bath room. It has a full basement containing vapor heating plant, coal room, laundry room and trunk and storage rooms. The electric pump which furnishes water to all the residences is located in the basement of this building, and with the large pressure tank is connected by pipes to all the other buildings of the the group. Cost \$21,000.

The superintendent's cottage, the agriculture teacher's cottage and the janitor's cottage made from rural school buildings are modern in every way, each having hot air heating plants, electrical equipment and bath rooms. Each also has a full basement with furnace rooms, coal



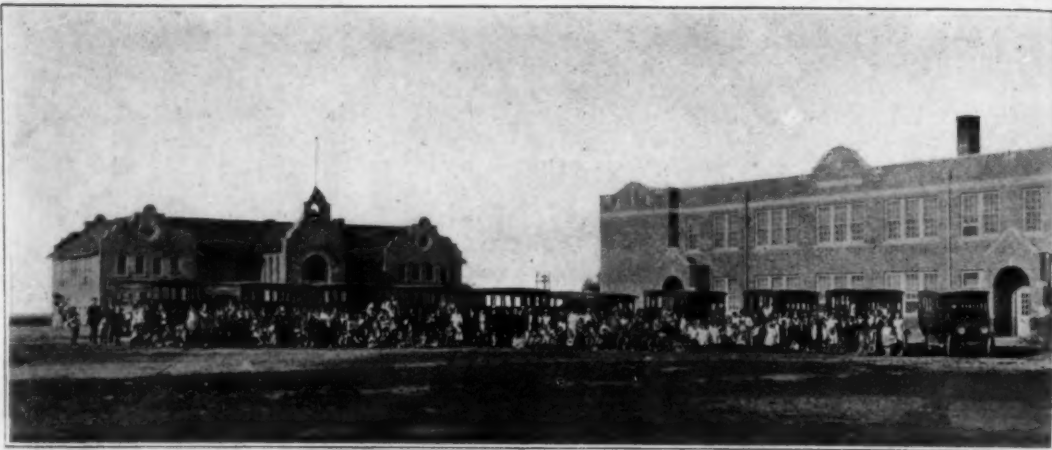
GRADE SCHOOL, HOLCOMB CONSOLIDATED SCHOOL, HOLCOMB, KANS.

and laundry rooms. The superintendent's cottage has nine rooms and sleeping porch, the agriculture teacher's cottage has five rooms, den and sleeping porch and the janitor's cottage has six rooms. The boy's dormitory has eight rooms and bath.

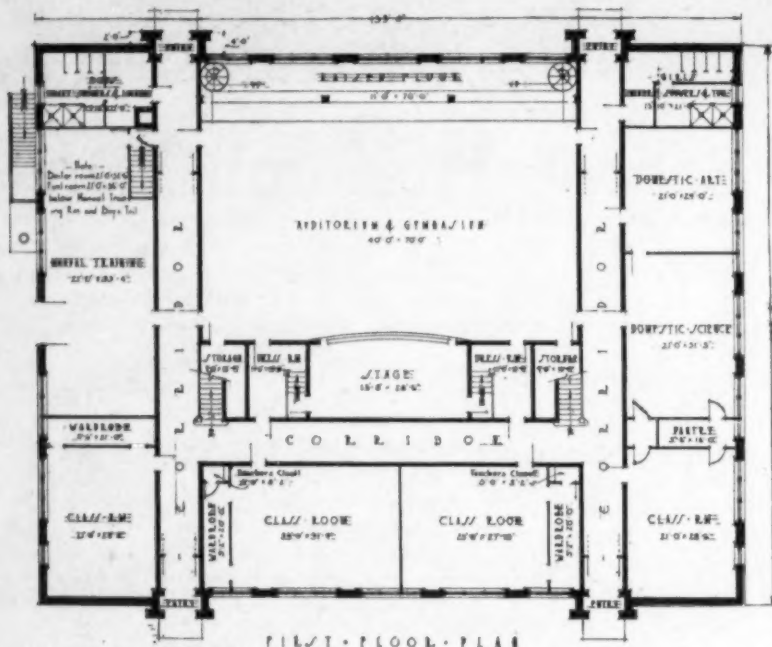
Advantages of Consolidated School.

The entire plant represents an outlay of \$225,000, and is perhaps the most completely equipped rural school plant in the state if not in the entire country. Some of the advantages claimed for this rural school are:

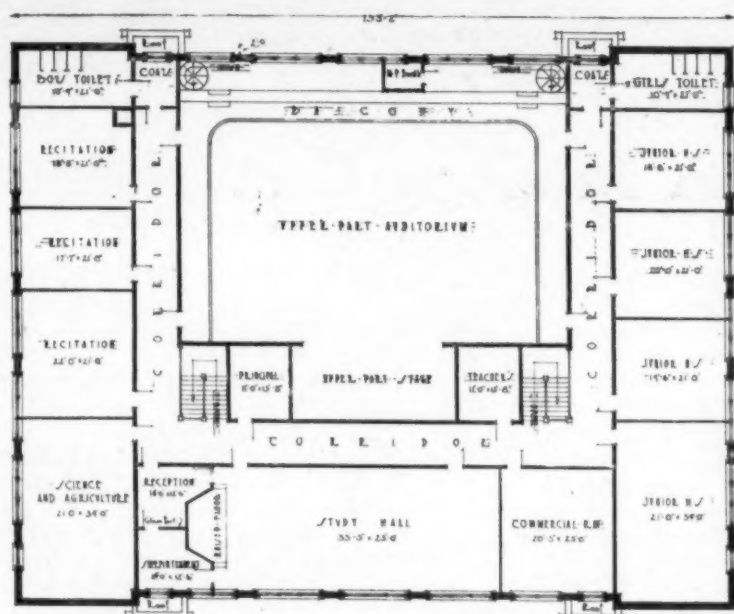
It gives the teachers a home where they are not under a strain as a guest in a private home, or in a boarding house. It gives them board and room at a low cost; so far the entire cost for board and room has never exceeded \$24.00 per month. A matron is employed by the teachers who keeps house and prepares the meals. The rooms furnished with bedstead, springs,



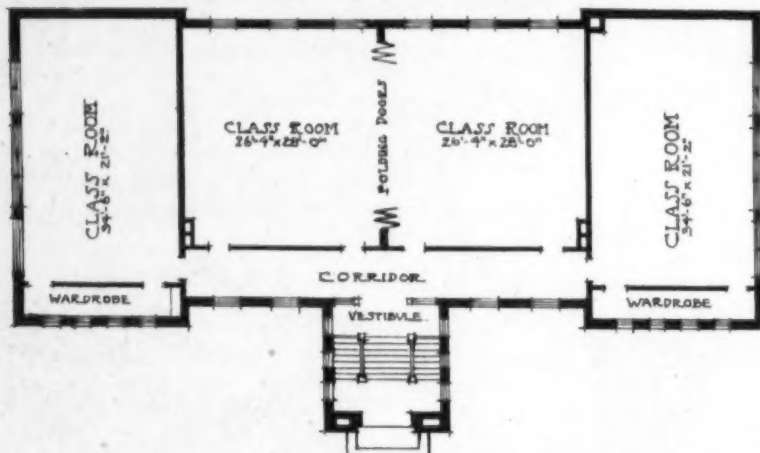
THE PUPILS AND TEACHERS AND THE CONVEYANCES, HOLCOMB CONSOLIDATED SCHOOL, HOLCOMB, KANS.



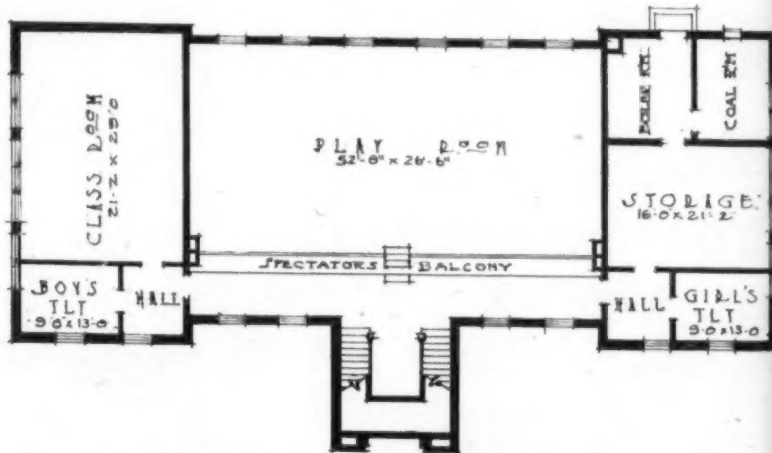
FIRST FLOOR PLAN, CONSOLIDATED SCHOOL, HOLCOMB, KANS.
Mann & Gerow, Architects, Hutchinson.



SECOND FLOOR PLAN, CONSOLIDATED SCHOOL, HOLCOMB, KANS.
Mann & Gerow, Architects, Hutchinson.



FIRST FLOOR PLAN, PUBLIC SCHOOL, HOLCOMB, KANS.
Mann & Gerow, Architects, Hutchinson.

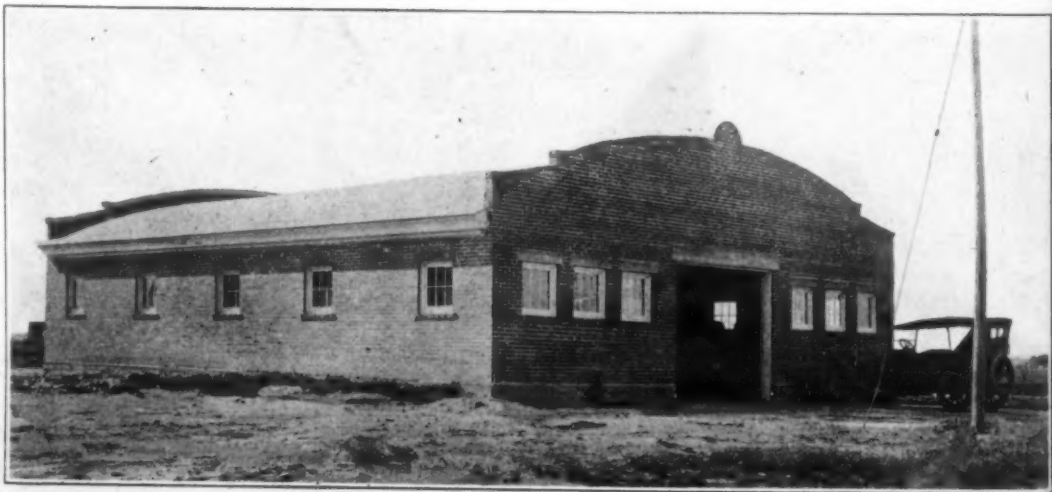


BASEMENT FLOOR PLAN, PUBLIC SCHOOL, HOLCOMB, KANS.
Mann & Gerow, Architects, Hutchinson.

mattress and dresser are rented to the teachers at four dollars each per month. Each teacher pays her proportion of the maintenance cost.

It gives the teachers better equipment to carry on their school work under sanitary conditions. It gives them the advantage of association with others of similar tastes and ideals, and of sympathetic supervision.

Pupils have the advantage of a better graded system; the inspiration and competition of numbers; the advantage of better equipment and better teachers, as the best teachers are glad to work under the conditions found here. They have supervision of both study and play. They have the advantage of special teachers for special subjects. Geography, art, music—vocal, piano, violin, orchestra, glee clubs and choruses, —agriculture, under an approved Smith-Hughes teacher and household science are all offered by specially qualified teachers.



SCHOOL GARAGE OF THE HOLCOMB CONSOLIDATED SCHOOL, WHERE THE SCHOOL'S AUTO BUSES ARE KEPT.

Hot lunches are offered to all who care for them at cost. Athletic advantages are secured as specially qualified directors are employed. The opportunity to participate in dramatics, plays, parties and social gatherings is secured. Because of the auto-bus transportation the children are able to attend more of the time. When weather or roads are too bad for the busses to run the school is not carried on. Thus, all children have the same advantages. Children always arrive at school warm and dry.

Another great advantage is that children may complete the four years of high school and be at home every night under the supervision of their parents. Many children acquire habits detrimental to their future success when sent away from home to high school. No opportunity to form loafing habits is found here as when the busses go out at night all the children go home.

The school endeavors to serve all the community as well as the children. This is done through the community church and Sunday school, through community singing, which comes on Thursday nights, and through the community chorus which meets twice a week working on special music for religious and special occasions.

Adults have the benefit of orchestra and instrumental practice. Ladies' Aid Church dinners or regular community dinners are served once each month and programs of community interest are given in connection with these dinners. Community basket ball teams are formed and have one night each week for practice. Social parties, plays and special programs are given. A lecture course is secured for entertainment and inspiration. As soon as the fall work is done classes in English and citizenship for the foreign element are to be formed.

The underlying idea of this school is that every boy or girl, regardless of wealth or geographical location should have the same advantage of an education as the most favored boy or girl in any locality, and that not only all educational but all social and religious needs of the rural community should find their satisfaction within their own boundaries.

SCHOOL TAXATION QUESTION—THE ANSWER.

The one great problem before the school administrators of the United States today, pressing for solution, is that of taxation.

Shall the schools of this country receive greater financial support?

If so, are the expedients now offered either feasible, practical, or wise?

What are the fundamentals in taxation which must be observed in reaching the solution?

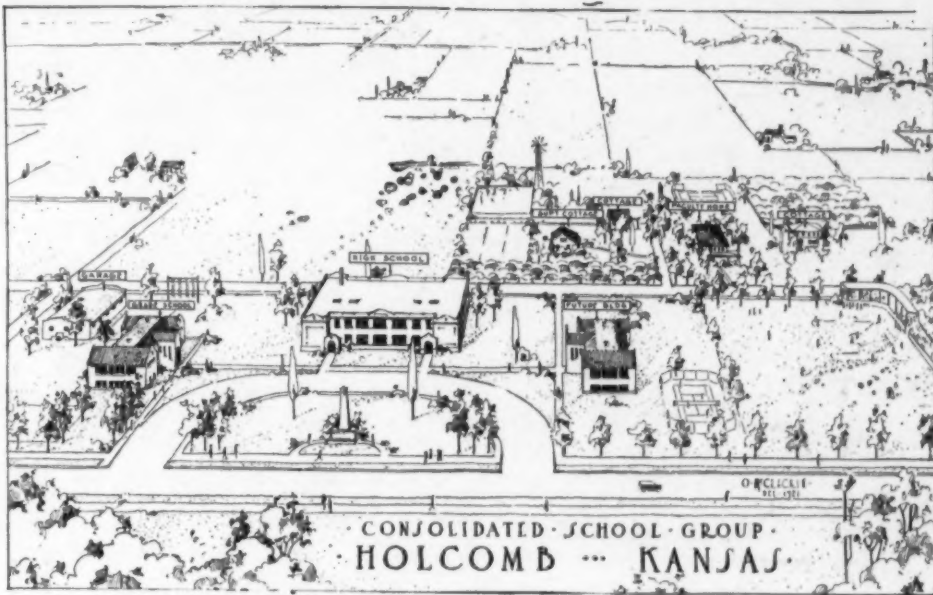
What are the equitable and workable tax methods and agencies that the schools must look to for desired results?

The answers to these questions will be given in a series of articles on "School Taxation" by one who has made taxation a life's study and who has held high office as a tax administrator. The writer is also at home in the field of school administration and fully alive to the exigencies and problems now confronting the same.

The first of the series of "School Taxation" articles will appear in the February number of the School Board Journal.



TEACHERS' HOME AT THE HOLCOMB CONSOLIDATED SCHOOL.



AIRPLANE VIEW OF THE SCHOOL AND FARM GROUP.



ACROSS A FIELD OF THE SCHOOL FARM, HOLCOMB CONSOLIDATED SCHOOL.



Boys' Rooming House.



AGRICULTURAL TEACHERS' COTTAGE.
COTTAGES AT THE HOLCOMB CONSOLIDATED SCHOOL.



Janitor's Cottage.

State Bureaus for Regulating and Directing the Building of Schools

John J. Donovan, Architect, A. I. A.

In order to obtain a reasonably comprehensive idea of the amount of money appropriated throughout the United States during the years 1919, 1920, and 1921 to date, for new school buildings, the writer addressed a letter to a number of state officials making inquiry into these facts. The replies in many instances were anything but reasonably comprehensive; a few were definite, the greater number failed to reply, or stated that the records did not clearly differentiate these amounts from other expenditures.

However, in 1918 a Federal report stated that in the year 1916, \$125,000,000 had been spent in constructing new and altering existing school buildings, notwithstanding Europe was at war and a depression overcast the building industry of this country. So it is quite safe to estimate the appropriations of 1919, 1920, and 1921 at about \$200,000,000 as an average for each year. Furthermore, it is conservative to estimate \$200,000,000 as the average yearly amount that will be spent during the next ten years, due to the great shortage of schoolrooms.

Now, every spree has its own reaction, whether it is the next morning, the next year or in the next generation, but it does seem as though a little reflection might be given to harnessing the forces so that the sprees would at least be of longer duration and have pleasanter reflections. And the point of the matter lies in regulating and directing the work of those who have the authority to spend the money.

Supervision and Direction.

About ten years ago, the Federal Bureau of Education published Dr. Dresslar's "American Schoolhouses" a much needed treatise and one which served its purpose. From time to time, bulletins are issued from the Federal Bureau giving valuable information pertaining to departments of the school plant, but on the whole, this sporadic information is not serving the purpose of properly directing the expenditure of the vast sums of money spent yearly for new school buildings, for the simple reason that it is not correlated, it is not sufficiently complete, most of it is not usable as it is not diagrammatic enough and it does not reach the hands of those who have the most use for it—namely, the architects who really spend the money.

It is very easy to criticise and complain and probably just as good form and proper as it was for the cat to look at the queen, and I am not finding fault with the officials at Washington or elsewhere, because I do not know what is wrong; if there is anything wrong with them. It is really more sport to choose larger game, and the mark to shoot at is the public itself, as they furnish the money and forget about it until it is time to "ante up" again.

On the other hand, it is almost unbelievable that the representatives of the people should permit the sums to roll up and out without a proper supervision and direction of the expenditures; and particularly is it unbelievable considering the number of years the States and the nation have been in the school-building business.

Now, before prescribing, let us diagnose the case and see just what is the present modus operandi regarding the building of a single school or many schools. When a school board finds that the enrollment has outstripped the existing capacity, it decides that a new school is necessary, and proceeds to bond the district for a fixed amount. In nine cases out of ten, the amount to be raised is determined without the slightest scientific data at hand as to what the amount will do.

If the bond election is successful, the board later spends an evening listening to a number of architects, each trying to cram into the allotted half hour all he knows about school architecture and why he should be chosen over his confreres. These are great moments of personal salesmanship, and the selection is not always the survival of the fittest, for the feeling is natural that one must survive even if not fit, and rightly so too, consequently, some selection is made.

Then what happens? The plans and specifications are prepared and later the building is built. But under whose direction and regulation as to the esthetic value of the design, the coordination of building with the school organization, safety and economy of construction and planning, the hygienic welfare of the occupants and a few other things?

Why, of course, the answer is that the board looks to its architect for all these matters to be cared for as the entire affair is in his hands, and possibly somewhat in the hands of the principal or the superintendent. Sometimes the latter two are men who have had wide experience in such matters and if so, so much the better.

On the other hand, I have heard it said by a professor of education of one of our universities that few school superintendents survive a building program, which shows that fundamentally, there is something wrong. And I will say, that few architects repeat in the same town, which again shows something fundamentally wrong, as both superintendents and architects are not always wrong in all places.

Disconnected School Building Programs.

A fact of the matter is, boards of education are continually changing in their personnel and any experience gained in one building program is lost almost entirely long before it is time for the next program to appear. Rumors and truths of dissatisfaction influence new and old board members to recommend changes in the personnel of their officials.

Post-building investigations are, as a rule, a waste of time and money, and especially when they are made by those not competent to investigate thoroughly. Consequently, somebody has to be the "goat" when things are wrong—if discovered; but if not discovered, so much the easier. Unfortunately, however, the child who is compelled by law to attend the school, is the above mentioned animal in either case.

Now for a remedy. A few states have taken precautionary measures by enacting laws which have created bureaus consisting of men, expert in schoolhouse building knowledge and data, and these laws require that plans and documents pertaining to any and all new school buildings shall conform to requirements and regulations, established by these bureaus.

But the greater number of states have no laws regulating the construction of schools, leaving the matter entirely to local ordinances which apply only to the safety and sanitation of the structure. And in the greatest number of places, where schools are built, there are not even these meager ordinances.

Stop for a moment and think, could there be any condition or set of conditions more conducive to waste, misapplication or blind blundering in repetition of obsolete arrangements, and equipment. However, let it be said that great credit is due to both the teaching and architectural professions, not only for the progress that has been made in school architecture, but also for the endeavors to keep abreast of the rapidly

changing conditions.

On the other hand, how many schools must an architect build before he attains proficiency in the subject? And let it be said, right here, that this is no plea for the specialist or "holier than thou" individual, with a list of accomplishments longer and more scattered than the tail of Haley's comet. No indeed, rather this is a word for an opportunity for the less initiated, so that he may have guidance and direction in the commission allotted to him, in order that those who occupy his buildings may live, work and play healthfully and happily.

Value of Efficient Bureaus.

And this leads to one of the points of this paper, namely, that a bureau should be established by law, in every state in the Union, or jointly by adjacent states, consisting of a well-trained architect, mechanical and structural engineers and a schoolman, who knows the school problem as it affects the building. Also a competent staff of assistants and a clerical force should be a part of this organization. Then it should be required that all plans, specifications and documents shall be submitted to this bureau for approval and suggestion, at least at two different periods; first, when the preliminary drawings are completed, and second, before the final working drawings have been presented to the local board of education.

Such a bureau should have well defined rules and regulations sufficiently flexible in their construction, interpretation and enforcement that new developments and discovered betterments may be quickly and easily adopted. Policing alone the design and construction of schools, would prove irksome to both bureau and those having to deal with it.

Its manner of handling the problems should be inviting and made attractive to all, including boards of education, superintendents and architects, and so much so, that instead of apprehension, the thought would prevail that assistance and cooperation would be anticipated. On the other hand, they should have complete authority to require competency in drawings, specifications and building management, so that the work shall be properly shown and specified in order that it may be properly executed.

The details of the possibilities are too numerous to set forth in any one paper, likewise the fruits from such co-ordination between the state, the district and the individual. But one thing is certain, the nation would have more good schools, they would be better designed, better and more economically constructed, more healthful, and there would be more rooms provided for the money than now prevails.

Such a bureau would be equipped to collect data, to investigate and research into features of building materials, devices, school equipment, prices of labor and materials, or other matters pertaining to the building and equipping of schools. Findings of such investigations should be easily available and published every two, three or six months and so orderly presented, that the information would be not only valuable, but in a usable form for ready adaptation.

Avert Costly Mistakes.

Education is continually changing and enlarging its scope and activities—naturally, the equipment and its arrangement require modification and often elimination for something totally different, to say nothing of the building itself. And it is a great pity this is not discovered until it is too late and the deed is done, and never to be undone.

An alert and effective bureau would be a great help to the educational and architectural professions, and would be the means of preventing many mistakes and errors in planning, construction and equipping of schools. Think of this for a moment.

The structural division of a building usually approximates twenty per cent of its total cost. Twenty per cent of \$200,000,000, is \$40,000,000; ten per cent of that latter amount is \$4,000,000, an amount which could be easily saved by the structural engineers in their friendly guidance, suggestions and checking of the structural designs submitted. Mechanical equipment, such as heating and electrical installations combined, approximate twelve to sixteen per cent of the total cost of the structure.

What is possible in the structural design is also possible in this department of the program. And, then consider the blessing of eradicating some of the abominations passing by the names of heating and ventilating systems.

The influence for good of the schoolman, and the architect in charge, is too immeasurable to attempt to outline, but it is sufficient to say that there would be better designed schools, and schools would function better than the greater number built today.

It may not be practical for every state to support such a bureau, but it certainly would be practical and advantageous for two, three or even four contiguous states of small populations to unite and create a central bureau, which could

be properly equipped and which would function for each and all. Adjacent counties now do that in hospital work, acting through a commission representative of each county.

Value of Coordination.

It would be useless to attempt this work, unless it shall have a real meaning and be productive of the possibilities awaiting it; and this cannot be accomplished unless the staff is equipped with men of ability and sufficient money is provided to make the positions attractive to those high in their respective professions.

It would be asking too much to hope that all bureaus would be "chemically pure" of politics in the appointment and conduct of management; but the "bugaboo" of politics should not deter an early solution of this great public need. On the other hand, it should be remembered that if the bureaus are equipped with men of merit, great respect by the public and the professions will be one of its chief attributes.

The value of coordination and cooperation between the several state bureaus is inestimable in creating uniform laws, exchange of information, reports of investigations of equipment, methods and matters of mutual interest. As it is now, the National Education Association, through its Committee on School House Standardization and the American Institute of Architects, through its committee on School Building Measurements, are endeavoring to arrive at and establish certain standards which may be help-

ful in the work of designing and building schools; but what can result from the efforts of both Committees?

They have no authority; they can only investigate and report back to their respective organizations and have their findings printed—and into how many hands will this information fall; and to what extent will the country at large profit by the work of these earnest men? Those who will profit most, are the members of the committees and only in so far as they are interested in the work, and the study they put into the subjects. The final results of their work will be only a step of the great many to cover the distance which properly equipped bureaus alone can cover.

Also, this country is too large, and it takes years of work and research for any report or series of reports to be accumulated and be of value. Such matters require constant revision and up-keep to be of any permanent value. It is the work of the nation and of the several states, far more so, than that of any one or several organizations; even though they are national in character. The real point of the matter is, that school building is the business of the state and of the nation, and not of any single or group of professions. But the states have left it to everybody and anybody and in ten years, \$2,000,000,000, will be spent, and the entire amount would be better spent if the entire work was done under the right kind of regulation and direction.

Better Health Through Better Ventilation

C. A. Eddy, M. E.

A keen imagination is one of the greatest things in the world. Without imagination, how dry and drab life would be! And yet with all this, it is not necessary to have the keenest of imaginations to realize how great a part perfect health plays in our lives today, or to visualize just what it means in connection with school work.

Most of us during the summer have spent considerable time in the country or in sections with wide open spaces, noticeable by the absence of the ever prevalent smoke and dirt of the city. We know what it means to go outdoors after a shower and fill our lungs full of the energy giving ozone. We know what it means to come back from a vacation spent in such surroundings with our brains clear, our muscles hardened, and a desire to dig into our work and accomplish things because we have renewed energy and greater ambitions.

This is the brighter part of this health proposition but it is by no means all there is to it, and the fact that it is so important when it pertains to growing children particularly, means that as far as fresh air in the schoolroom is concerned, it is a tremendous subject, which must be satisfactorily solved. It is not enough to feel that the schoolroom will never be the same as the out of doors,—let us make it as close to what nature intended as possible. We know some teachers and principals who are so steeped in the methods of olden days, that they do not consider that any change is possible from the chalk-filled, stuffy atmosphere prevalent today in many schools.

Visit some of the country's splendid new hotels, especially on a hot summer day. When you go inside, you sigh with relief, and wonder how it is possible to keep such large buildings so cool and comfortable indoors when it is so hot and muggy outside. You wonder how the air can possibly be so fresh as it seems to be with the atmospheric conditions prevailing outdoors. Do you wonder why these Twentieth Cen-

tury hotels beckon to the man of means, and why they are successful in maintaining a perfect weather condition indoors at all times?

Retain Goodness in the Air.

The builders of these places have long since found out that right ventilation is a science, and that ventilating equipment can be so installed and used in a public building that the air indoors will actually be much purer and more comfortable than that of the outside. We have taken advantage of these facts, and are equipping hotels which are considered wonders even in today's parade of never ceasing novelties. It is just here that members of school boards and school principals can take a lesson as to the benefits of scientific ventilation in their schools.

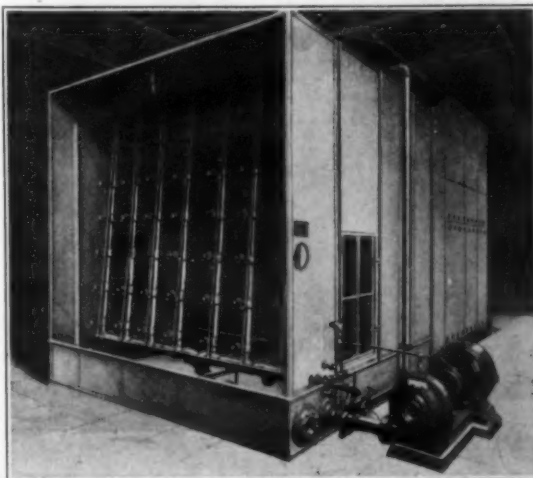
Men who have made a study of the subject tell us that ideal air conditions take place in the country just after a good thunder shower or a heavy snowfall. It is then that the air is practically 100 per cent clear, and is considered an ideal air condition. Mechanical ventilation, (Air washer and fan), properly installed in any school, and properly handled, gives as close to an

ideal condition in the schoolrooms as it is possible to get, and approximates the condition of the air in the country after the rain or snow as closely as anything could do.

To paraphrase a popular advertisement, all the goodness in the air is left in and only the unessential and un-healthful parts of it are left out. In other words, with ventilating equipment properly installed, the dust laden air of the city and factory districts is drawn in from the outside, passed through the sprays of water in the airwasher, where it is cleared of a large part of the foreign material, and is then circulated through the various rooms by means of the fan. In the winter, steam coils are used in addition to warm the air before distribution into the rooms. This whole process is the result of a great many years of careful study and investigation into atmospheric conditions, and it is now known that mechanical ventilation comes the closest to the ideal conditions in the country of anything discovered today.

Some people feel when you talk to them about mechanical ventilation that the air must be put through some sort of a treatment which changes it and possibly takes some of the freshness from it. The statement has even been made by people, who ought to know better, that in the winter months, when the air which has been cleansed through the air washer is blown over steam coils and warmed to the right degree for health and comfort, that this air is in reality "baked".

That such a contention is wrong can be easily proven by anyone who cares to take the time to find out just how the air is handled through mechanical ventilation. All that such equipment does is to clear the air of foreign particles so that it will be minus the contamination of soot and dust prevalent in nearly every school vicinity. After the air is cleansed, it is not necessary to so heat the air as to destroy its goodness. It is only warmed to the necessary degree for comfort during the winter months.



The air washer cleans the outdoor air of dirt, soot and other impurities. Washed air ventilation makes the schoolroom a healthful place for both children and teachers.

When Windows Cannot Be Opened.

Some people ask, "Why go to the expense of installing mechanical equipment to bring air into the schoolroom when we can open the windows and get all the air we want?" Such people have given very little thought to the question or realize its importance to the health of children today. These people hark back to the days of the famous little red schoolhouse, and because in those times they had little, if any, comforts in the school, they cannot understand why outdoor air brought in through an open window is not sufficient for all purposes. If it was a fact that window ventilation was satisfactory, you would not find the great number of splendid school structures costing thousands of dollars each, equipped with mechanical ventilating equipment.

While it is true that there are a few months in the year when the windows can be left wide open, these months are mostly during the vacation period. What about all the days and weeks of the school year with the rain and chill biting winds when the windows must be closed? Suppose we keep the windows shut tightly at such times. In a short time, the rooms become stuffy, the children complain of headaches, and the teachers do not feel equal to giving their best efforts. If you open the windows then some of the children are in a draft, resulting many times in serious consequences.

In other words, no matter how you look at it, you cannot secure satisfactory ventilation through open windows. With the importance given to the health of children today, and the limits to which we go to furnish them the best that can be secured, is it really a sensible thing to ignore the question of scientific ventilation, especially when it has come to be such a big factor in school life today, and so many schools are using it with such great success?

It is time that parents of school children knew more about the ventilating question. It is time they gave some thought and study as to just how this can be solved, and to find out for themselves how right ventilation affects the health of the children. Probably, it has more to do with health than food, and we all know how important that is.

Dangers of Dusty Air.

A writer in an issue of *Engineering and Contracting* says, "Lungs act like filters and remove from the air a large percentage of its soot and dust. There can be no doubt that the increasing burden of such dirt in the lungs tends not only to impair their ability to purify the blood

but renders them more susceptible to the attacks of microbes. Men who work habitually in a dusty atmosphere, notably stone-cutters and miners, contract tuberculosis at an alarming rate. The writer thinks that it is the business of the civil engineer, who has already given our cities clean water, to give them clean air also."

Clean water—water free from bacteria—accounts for our comparative freedom from typhoid. Clean air will similarly eliminate most of the diseases of the respiratory organs. On every mote that dances in a sunbeam there rides many a disease germ. The dust particles sent flying by motor vehicles on gusts of wind are so many infinitesimal omnibuses carrying loads of passengers who wish to be put off in some warm nose, throat, or lung, where they may multiply. And the same holds true of every particle of soot that escapes unburned from a chimney.

To the man who knows this much of science, dirty streets and sooty air are more dangerous than all the murderers at large in all the world. But to the average person street dust and smoke are nothing more than unsightly and disagreeable objects. In the City of Chicago—to take only one of several examples—countless chimneys and hundreds of locomotives are daily spewing the air with soot throughout the winter months. Let a person wash and wipe his nostrils clean before breakfast, and if he will wipe them an

hour or two later, he will discolor his handkerchief with big black blotches. These blotches are the soot that is sifted out by the fine hairs in the nostrils. But in his lungs are worse blotches from the soot that they have sifted out. People grow old and die fast enough in the purest of air. Such a smoke laden atmosphere strikes years from the calendar of the average life. Yet the average person does not know it, and goes as complacently to an earlier death as do the cattle to the slaughter pen.

Scientific Ventilation a Fixed Fact.

The air of every city can be made pure by being kept pure and it is the function of engineers to bring this about. Not only is it their function to keep city air pure but it is peculiarly their duty to arouse the public to authorizing them to apply their knowledge.

It is not to be expected that all parents of school children will take the time to go into this important problem. It is therefore up to the members of School Boards and school principals particularly to learn just what constitutes the best and most effective methods of school ventilation, and what mechanical ventilation is doing in so many of the better schools.

Of course, such equipment must be properly installed and properly handled, just the same as anything else of a mechanical nature must be given attention or it will not prove satisfactory. The best automobile you might buy may be perfect from a mechanical standpoint, and yet if its owner never gave it any attention, it would certainly not do the work expected of it. The same thing applies to mechanical ventilating equipment. If it is handled along the right lines, there is no question as to its success.

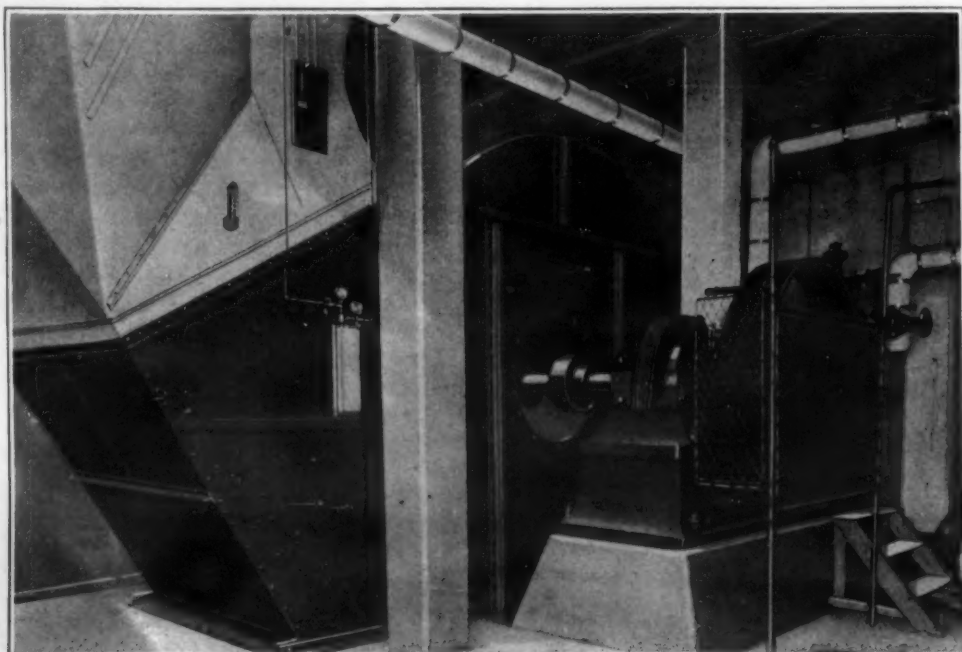
Just as ideas change from time to time, just so new plans and new methods are coming to the front to displace the old worn out ideas and practices. Scientific school ventilation is not a new untried experiment, neither is it something that has been tried and passed up because it is too scientific. It has been proven successful because it follows out definite prescribed lines, and ventilating engineers through years of study and careful experiments have found it to be right.

What is more, a great number of the medical profession are advocating such methods, because they realize the futility of properly ventilating the schools where windows only afford the necessary ventilating means, and they know from experience, many of them as members of School Boards, that a good system of mechanical ventilation, properly installed and properly handled,

(Continued on Page 128)



THE SMALL SCHOOL IN THE COUNTRY DISTRICTS OR THE LARGE CITY SCHOOL SHOULD BE DEPENDABLY VENTILATED DURING EVERY SCHOOL HOUR.



THIS VIEW SHOWS A VENTILATING FAN WITH AIR DUCT LEADING TO VARIOUS ROOMS. THIS METHOD OF VENTILATION INSURES A DEPENDABLE AMOUNT OF FRESH AIR WHENEVER NEEDED.



THE MAINE MODEL RURAL SCHOOLHOUSE AS WORKED OUT BY MR. GORDON.
Bunker & Savage, Architects, Augusta, Me.

A Universally Adaptable Rural School Building

By Adelbert W. Gordon, General Agent for Unorganized Territory, State Department of Education, Augusta, Maine

This plan is an attempt to provide a model rural schoolhouse adaptable to any position, suitable for community use, and provided with room for all rural school activities, all within a building of average size and possible of erection at a moderate cost. A study of the plan will show that its principal new features are the arrangement of the coat rooms on the side of the schoolroom, the combination stage and workroom, and the location of the toilets and fuel room under the stage, all of which make possible an exterior without the blank unattractive walls common to most buildings of this type.

As a result of considerable attention given to rural school architecture in recent years, there are now a good many excellent and attractive plans for rural school buildings. Most of these plans, however, can be properly used in but one or two positions. Very often a plan that is entirely satisfactory in every other particular cannot be used on account of the lighting. Unfortunately such plans are sometimes improperly used with the result that succeeding generations of school children will probably suffer. There are three chief reasons for this limitation in use of rural schoolhouse plans: first, such plans cannot be reversed as this would bring the lighting on the wrong side of the pupils; second, light for a schoolroom can properly come only from certain directions; third, on account of the arrangement of the interior of most such buildings there are of necessity one or two blank unattractive walls, thus making it impossible to place these buildings other than front to the highway without ruining their appearance.

Solution of the Light Problem.

This limitation of use has been overcome in the universally adaptable plan by the arrangement of the interior already mentioned which makes possible the use of windows on all four sides and an equally attractive building from whatever angle viewed. As a result it may be placed, if necessary to obtain proper lighting for the schoolroom, either side or even rear to

the highway. Some might object on general principles to the latter arrangement but there is no real reason for such objection when the attractive appearance of the building is preserved and there is no outbuilding to consider. By reference to the diagram it will be seen how this building with slight changes in the positions of the entrance porch and cellar way may be adapted to any school lot, whatever its location may be with reference to the highway. In each of the positions the steps to the entrance porch face the highway and the cellar way is placed in an inconspicuous place. The writer prefers west to southwest lighting and the diagram is, therefore, arranged accordingly. It will be seen, however, that the building can be used as well for each lighting if this is desired.

The schoolroom is of standard size for forty pupils, 30' long, 23' wide, and 12' high, with the small alcove at the right in front in addition. The lighting is practically of the unilateral system. The small window in the left rear really affects the lighting very little, but if objectionable, frosted glass can be used, or this may be made a blind window, thus preserving the exterior appearance of the building. The window in the alcove comes behind the partition of the coatroom, thereby not affecting the lighting of the schoolroom while at the same time providing light from the left for the teacher, an important feature usually overlooked. The casement windows on the left side of the schoolrooms make a more attractive exterior possible. These windows may be easily adjusted for ventilation without drafts with the wind in any direction and they have other advantages. Their cost is about the same as for ordinary windows, which can be used without changing the plans, if preferred.

Heat and Ventilation.

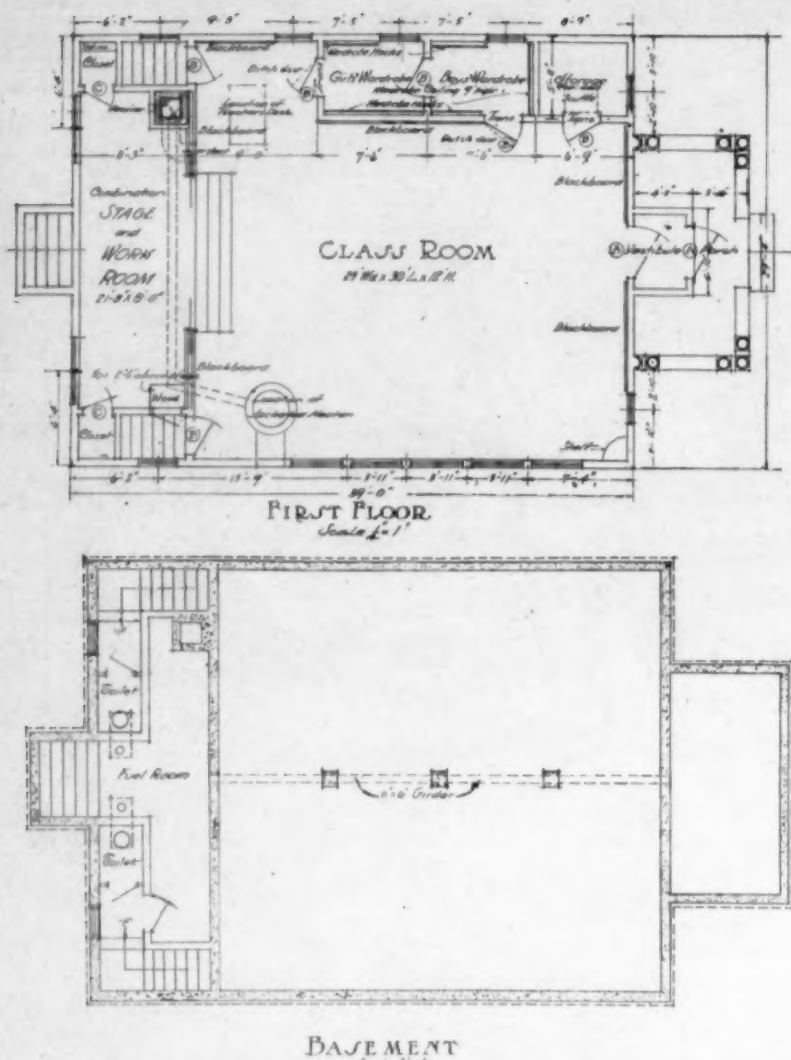
It is planned to heat the building with a ventilating stove or sanitary room furnace, sometimes so-called. The location of this will be in either the northern or western corner of the

schoolroom, in accordance with the position of the building, which is the proper place for the heater where the prevailing winter winds are from the north or west. The smoke flue of the chimney is also used as a ventilating flue as with heaters of this type. A galvanized iron duct leads from the chimney near the floor to the ventilation register which is so located that a proper circulation of air will be insured. If preferred, this register can be placed nearer the middle of the front of the room and, in this case, would come through the riser of the lower step to the stage. The chimney dimensions are standard for a building of this size in which a ventilating stove is used. Fuel is brought through the nearby door to the fuel room while there is a wood box conveniently located just inside the door under the stage.

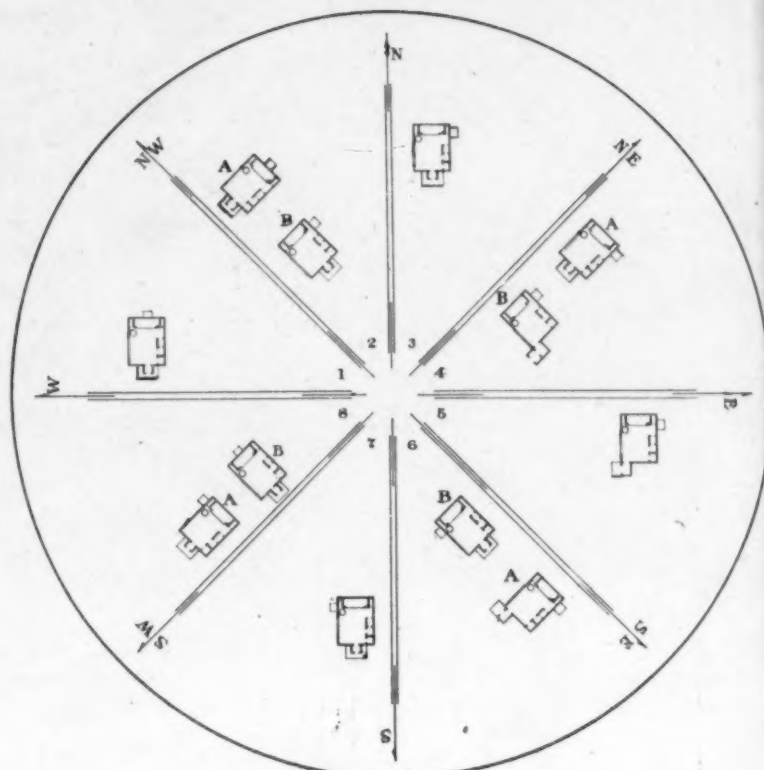
The arrangement and size of blackboards are important features of any schoolroom and especially so of a one-teacher school of any number of grades. By an arrangement of blackboard panels on the partition doors to the stage and workroom, we have blackboard extending nearly across the front of this room, while there is a board of good length on the right hand side and also a board in the rear. These combined make considerable more than the usual length of blackboard for a room of this size. The rear blackboard serves many useful purposes and saves much space for everyday use on the other boards. The blackboard is 4' 6" in width and, therefore, provides fifty per cent more space than the usual board 3' in width. It is placed 27" from the floor. This makes it convenient for the use of all grades of pupils from the little tot in the first grade to the tall boy in the eighth. The step to the stage also makes possible the use of the blackboard panels to a considerable height by the lower grade pupils.

Vestibule and Coatrooms.

The arrangement of the vestibule and coatrooms will be seen to have numerous advantages. The vestibule serves the usual purpose of pro-



MAIN FLOOR AND BASEMENT PLANS, MODEL RURAL SCHOOL, AUGUSTA, ME.
Bunker & Savage, Architects, Augusta.



Plan by A.W. Gordon
State Dept. of Education

PROPER ORIENTATION OF MODEL MAINE SCHOOL BUILDING.

This building has been so planned that, without detracting from its exterior appearance to any extent, it may be placed either side or even rear to the highway if necessary to secure orientation. It, therefore, can be used on any school lot however located. It is assumed that western lighting is preferable in this latitude and that the proper position for the heater is in the northern or western end of the schoolroom. The diagram shows the various adaptations.

protecting the room from the cold and direct outdoor drafts. Coatrooms should be used for that purpose only and not as loafing places out of the sight and control of the teacher. These coatrooms are purposely made small but at the same time with sufficient wall space for the clothing of forty children. They are well lighted and will receive sunlight for several hours during the forenoon of each clear day, an important feature often given no consideration. These rooms may be used separately or, by opening the door between, which otherwise should be locked, in combination. The latter way would seem to be best, and in this case the pupils should march through the coatrooms at the beginning and close of school and at recess time in an orderly and systematic manner, hanging up or removing their clothing from a given place. It will be noticed from the dimensions of the rooms that they are of convenient width for marching through, without waste of space and with both walls within easy reach. From the position of the teacher's desk she will have an unobstructed view through the coatrooms and at the same time of the whole schoolroom, this being perhaps the strongest feature of this arrangement.

Double-Use Features.

A rather unique feature is the possibility of using one or both of the coatrooms for a playroom for small children on cold or stormy days when otherwise they would be dismissed. By leaving the upper half of the Dutch door open, the teacher can easily keep small children, so using these rooms, under observation while at the same time they are entirely out of sight of the school. There is a glass panel in the upper half of the Dutch door so that this could be closed if the children were somewhat noisy—as they might well and properly be at play—and the teacher would still be able to observe their movements without interruption of her regular work. The clothing would, of course, be removed if the coatrooms were used for this purpose, and could be hung in the back of the

workroom on hooks provided for use on such occasions.

So far as I know the combination stage and workroom is an original feature. This, as will be readily seen, provides for two separate and distinct school activities while requiring the space usually necessary for but one. It also makes possible a convenient arrangement of toilet and fuel rooms at a minimum cost. This will be mentioned later. This room will be used for the most part as a workroom and as such is of good size and proportion. The end where the chimney is located will naturally be used for domestic science, there being sufficient space in which to set up a range near the chimney and a closet nearby which can be used in this connection. This will provide an excellent opportunity to develop the noon lunch plan. Folding tables could be provided to be set up in the other end of this room or elsewhere. The opposite end may be used for manual training. There is another good sized closet for use at this end of the workroom. A curtain could be hung between the opposite sides when necessary. The smoke pipe, which passes across this room but above the stage opening where it cannot be seen from the schoolroom, will assist considerably in heating this room.

Service Rooms.

By taking advantage of the 27" elevation of the stage, it has been possible to place the toilets and fuel rooms thereunder with only a small amount of excavation. The expense for this including the cost for the chemical toilets is little if any over the cost of an attached outbuilding and the arrangement, of course, far better. Great efforts are now being made to improve the toilet facilities of rural school buildings which for years have been little short of disgraceful. The attached outbuilding, the flush closet, and the chemical toilet are all being generally used. The first is an improvement but still rather primitive, the second is usually not practical or possible in rural schools, but the chemical toilet

under proper conditions seems to solve the problem. In localities with cold winters one condition for its successful use is protection against freezing and the plan of this building makes this possible, the chemical tanks being placed below frost. The cleanout openings of these tanks are placed conveniently near the cellar way for use when sewer connections are not available. The fuel room will hold about six cords of wood or a sufficient amount of coal for the season with space to spare.

When the building is used for community purposes the partition doors will be opened and a convenient stage of good size immediately provided. A drop curtain could be easily arranged to be used in connection with school entertainments. It is the plan to use movable chair desks and these together with folding opera seats would provide for ample seating. At other times the opera seats could be placed in the storeroom which is of good size.

The exterior of this building is simple, even plain. It is made so purposely. There are no valleys on the roof to cause leaks and damage. There are no projecting parts on the building to cause extra construction costs or heating expense. It is just a common rectangular building and perhaps too much like the old-fashioned schoolhouse. However, it may be made most attractive and lends itself to many variations in exterior architecture and finish. A gable or hip roof may be used as well as the one shown, while the pitch of the roof may be varied to suit local conditions or different ideas of attractive proportions. Shingles, clapboards, or siding may be used for the exterior, in their many variations, and the finish may be from the most plain to the more ornamental and expensive. The same general plan may be followed for a smaller building by simply taking out a cross section lengthwise and crosswise, lowering the height in proportion, and making some adjustments in the size of coatrooms, stage, and windows.

A School Building Program

Paul C. Packer, Assistant Superintendent, Detroit Public Schools

In the consideration of any school building program there are at least six outstanding factors that must be carefully considered. The first of these is the character of city, which determines the type and extent to which educational opportunities are likely to be offered. The second problem relates to the policy of organization which has to do with such matters as whether or not the first twelve years of education are to be broken up into a 6-3-3, 6-4-2 or one of many other organization schemes and is the essential basis of any concrete planning. The third factor is the determination of the ultimate plant, which is based upon the policy of organization adopted. Fourth, it is necessary to study the proposed ultimate plant, which has to do with determining each year's progress, leading to the carrying out of the whole objective. The fifth consideration concerns the determination of the method of financing the program. Sixth, it is necessary to sell this program in an effective way to the public or to the appropriating bodies.

Character of the City.

The first question any community must ask itself educationally is to what extent it shall assume responsibility in providing school facilities. This demands a careful analysis of the local educational needs. Primary responsibility for this rests with the educational staff.

This problem demands a prompt decision to the extent school opportunities shall be provided in any community. In other words, will the policy call for elementary schools alone, elementary and high schools, or will the community assume the full responsibility of a school organization that will eventually work out into an educational scheme which will furnish education from the kindergarten through the university, with all types of specialized work.

It is safe to say at the present that most large cities must look forward to a school organization that will furnish opportunities for students from the kindergarten through at least the junior college, and there is rapidly developing a belief that this will in the very near future include even the university. In any event, there must be set up for every city a definite objective goal which it expects to attain, if intelligent and lasting progress is desired. As in everything else, we have come to learn that any *laissez faire* policy is much more expensive and unsatisfactory than planning toward a definite end, even though that end does not prove to be an ultimate one. So then, the character of the city and its educational needs must be kept very clearly in mind and should at all times be in the background, if not in the foreground, in proper school building planning.

Policy of Organization.

The second question which arises the moment any community has decided upon the extent of its responsibility is what policy of organization will best fulfill the educational obligation it has assumed. Again this is a matter which rests primarily for its solution with the educational staff. Any scientific discussion of the strength and weaknesses of different policies of organization has no place here. On the other hand, just what happens when careful study is made of the many varied types of schools in any city is of importance.

Diagram I shows the analysis of the organization which existed in a large city some two years ago. You will note on the left of the diagram that there are twenty different combinations which had grown up pretty largely because

TYPES OF ORGANIZATION

PRESENT

K 1	K-1 1	K-2 2	K-3 1	K-4 6
K-5 4	K-6 22	K-7 21	K-8 63	I-3 1
I-4 4	I-5 1	I-6 2	I-7 1	I-8 6
7-9 4	7-12 5	8-12 1	9-12 3	9-14 1

FUTURE

K-6 115	7-9 22	10-12 18
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DIAGRAM I.
Each square represents a certain type of school organization. The letter and figures in upper part of each square indicate types of organizations. The figures in lower part of square indicate the number of each type. For example, the upper left corner square in the group of squares means there was one school with kindergarten alone, etc.

there had been no definite concrete program of a comprehensive character. After a very thorough and careful investigation there evolved out of this hodge-podge three distinct types of organization, which were finally recommended by the educational staff and adopted by the board of education. So far as records reveal, though this city had been travelling a long time, this was the first time it had ever bought a ticket to any specific educational destination. Without such a decision on policy this city could have hoped for only the most unsatisfactory results. Such experience leads to the belief that too great emphasis on policy of organization is impossible. It really is the keynote to any intelligent planning. We find that few cities have definitely and concretely written this essential plank into their platforms of school-building programs. As a result, most cities have formulated their policies of organization after the plant is in operation. Evidence on every hand shows clearly that this is not only an extremely expensive method of procedure, but is also one that invariably results in inadequate and expensive housing of educational activities.

The third question that comes up for solution is: What and where is the ultimate plant to be?

Ultimate Plant.

Here two fundamental rules must be laid down at once. The first is determined by the answer to the question: How far apart shall each unit of each type of school, as described in the policy of organization, be located? In general, the number of buildings for each type of school should be as few as possible. The realization of such a principle does away with schools which enroll a very small number of children, except in the early development of outlying districts which are sparsely settled. As a matter of fact, the only absolutely known and recognized factor which prevents concentrating all the educational activities of a city school system at one center is the distance children would be compelled to travel. This necessitates an early determination of the extent of the area to be served by each type of school which has been set up in the policy of organization.

Fortunately, we no longer need to rely entirely on opinion as to reasonable distances children should travel in reaching school to determine location of sites. To make this perfectly clear, let us assume that a school system has planned for elementary, junior and senior high schools. Recent investigations show that an elementary school (kindergarten to sixth grade, inclusive) is neither educationally effective or economical from the point of view of cost to operate, with less than approximately 850 pupils. Still better use may be effected both educationally and economically if these units are not less than approximately 1200. A junior or senior high school enrolling less than approximately 1000 is costly and does not permit of as large opportunity for adjustment to the individual needs of children educationally.

These facts in a large measure help to determine what is a reasonable walking distance for children who are attending school. As some districts are much more congested than others, the number of children that any two districts would contribute would vary a great deal. It is, therefore, wise to standardize a district which a school is to serve by selecting one where building restrictions are of such character that the minimum number of children will be contributed.

While there is no absolute certainty for every city, the indication is rather clear that an elementary school serving a district whose radius is one-half mile will furnish 800 or more children of elementary school age. In the junior high schools this territory has to be extended to approximately one of a mile radius to insure 1000 or more children who are enrolled in these grades, and the territory for a high school (tenth, eleventh and twelfth grades) must serve a district of approximately one and one-half miles radius in order to function in an effective way educationally and at the same time economically.

Of course, it is to be understood that in certain instances in the congested districts, the minimum number as indicated here which will attend schools serving territories of the size suggested would be greatly in excess of the minimum figures given. However, from an economical standpoint, the larger the number of children enrolled, the better, and at the same time no real harm, but an actual improvement educationally, seems to be the result when properly administered.

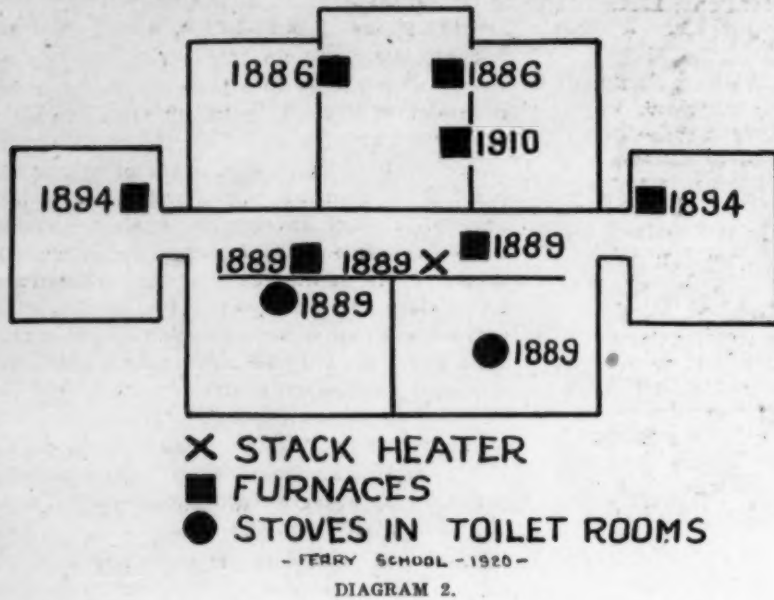
The first rule, then, that any city should set up is one which says that the schools should be located far enough apart so that each may serve a territory large enough to contribute both an educational and economical enrollment. Using the character of districts which contribute the smallest number of children to be educated, the a territory large enough to contribute both an to sixth grade, inclusive) would serve is one of approximately one-half mile radius. In the case of the junior high school, one of approximately one mile radius and in the senior high school (tenth, eleventh and twelfth grades) one of approximately one and one-half miles radius.

Change in size of districts served by junior high schools and senior high schools as compared with elementary schools, is due primarily to two factors: First, junior and senior high schools provide for only three grades each, while the elementary provides for six grades. Second, the number of children enrolled in schools grows less and less especially after the attainment of the compulsory school age. While no hard-and-fast rules may be laid down alike for every city,

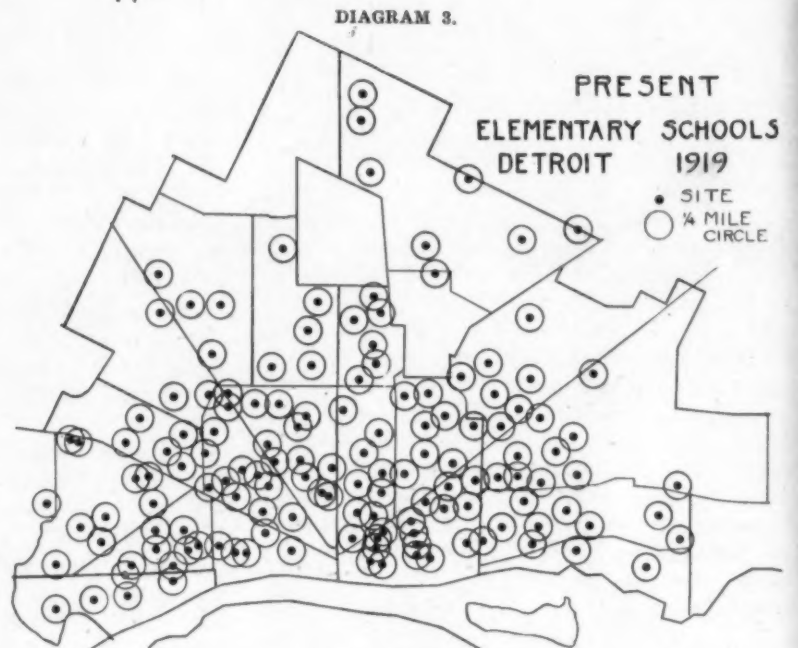
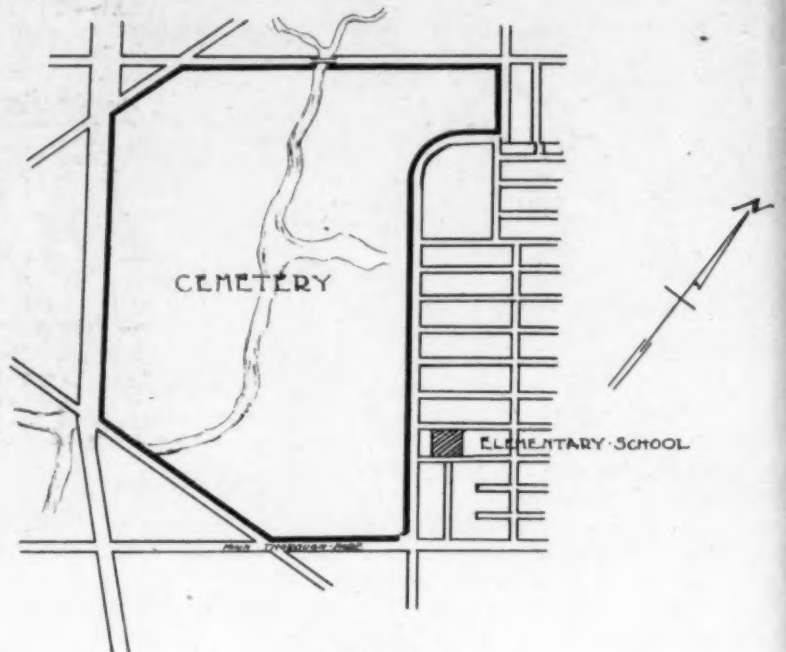
Address before National Association of School Accounting Officers, Detroit, May, 1921.

- DETROIT PUBLIC SCHOOLS -

10 FIRES IN A 12 ROOM BUILDING



WHERE NOT TO LOCATE A SCHOOL



each city must make its decision early and the following of such procedure as outlined above is necessary for successful planning. Without a ruling upon this matter nothing but haphazard and unsatisfactory results will be secured.

The second rule which must be early decided is that of the size of each site. A close study of the size of sites reveals the fact that nobody knows how much land should be set apart for each kind of school. Yet, on the other hand, there is every reason to believe that in the case of large cities, large numbers of children must be taken care of at each center, so that in the location of all new sites, especially in outlying territory where the land is unencumbered, every effort should be made to secure sites of not less than five acres for each elementary school; not less than eight or ten acres for intermediate schools, and not less than twelve to fifteen acres for a high school. In each instance the areas mentioned should be considered minimums rather than maximums. With such standards as these for site selections a city may insure itself against future cramped quarters for its school activities. No doubt such standards may seem a trifle large to a number of cities accustomed to having just enough ground for a building, and yet from this very experience we should all learn a lesson which will help us to guard against a recurrence of having no available play area but the streets.

With these rules in mind the first step in determining the ultimate plant is a careful survey of all the lands and buildings owned and operated by the school corporation. In such a study there should be revealed first those buildings and lands which it will be desirable to retain for an indefinite period. Two factors govern this decision. The first is the character and type of construction which includes, of course, the cost of maintenance and operation, and the second, whether or not the present location is a desirable one for continued use.

In regard to the first factor, one familiar with school buildings knows perfectly well that some buildings which in general might appear to be very effective are poorly constructed and the general upkeep has gone beyond the point where it would be a matter of poor business to retain them in the permanent plant. These buildings, however, may not to the casual observer reveal any real reason for their abandonment. This demands a rather thorough investigation from the point of view of construction, maintenance and operation. To clearly illustrate this point I have selected a building, the first part of which was erected in 1886. It is a brick building and while in driving by it one would not be struck by the beauty of the structure, on the other hand, one would feel that it still has many years of service to give. An analysis of this building tells a different story.

Diagram 2 indicates the outline of the building to which reference is made. Since the original four room building was erected in 1886, two additions have been made; and now it boasts twelve rooms. In the first place it is not a modern fireproof structure in any sense of the word. In the second place, when in full operation, ten fires of one sort or another must be kept going. To anyone familiar with school-house construction, maintenance and operation, nothing more need to be said except that it would be better to put this building in the discard at the earliest possible moment that relief might be afforded the district in which it is located. Before this analysis was made in this particular building nobody was clearly conscious of the fact that it was a building which should go out of commission as soon as it was possible to provide opportunities for the children now attending the school.

Illustration after illustration of this character might be called into play. For our purposes here, however, this serves very well as demonstrating a suggestive method of procedure which will result in retaining those plants that are worth while and so black-listing those plants that are not worth while that the new, modern, fireproof structures will be retained and the old structures forced out of existence at the earliest possible moment. In regard to the second

point, that of location, many illustrations might be given to show how careless planning has resulted in the placement of buildings where it is utterly impossible for them to give the maximum of service.

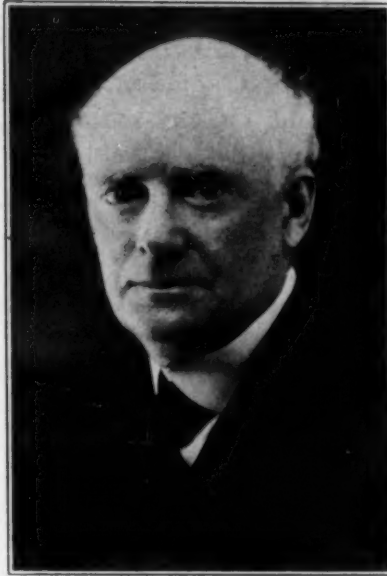
Diagram 3 shows a school located adjacent to a cemetery. Just what the original purpose of such a location might have been it is hard to determine. One might be led to suggest that a certain party or parties might have been desirous of getting rid of this piece of land and were, at the time of its selection, of sufficient influence to succeed in carrying out their aims. On the other hand, this site might just have been carelessly located at a time when the cemetery had not taken on such large proportions and thereby revealing only lack of proper study rather than malicious intent.

In any event, this school is very poorly located and plans should be made at once to locate a site which will in the future better serve the territory for which this school was originally intended. This statement is not only made because of the poor location of the site, but with the full knowledge that another site will shortly be necessary whether the old is abandoned or retained, and knowing this, it is felt that the new site should make provision to serve the territory in which the old school is located as well as the new demands of this territory. With such planning, the school population in this district could have one fine large building which would adequately take care of the whole territory, rather than one old, poorly constructed school serving part of the district and a new, relatively small school, serving the other part.

The Ultimate Plant.

After the buildings and grounds of the present plant have been carefully surveyed, the next task is to determine what purposes each unit will best serve in the future. That is, how many of them are best adapted for elementary purposes, how many for junior or senior high schools and whatever other purposes the policy of organization calls for. When this step has been taken, the officials in charge of the land and building program of the public school corporation are then ready to locate all sites for the future needs within the corporate limits. It is, of course, to be assumed that anyone in charge of this program will take into consideration in a very careful way certain outstanding factors outside of the control of the school authorities that will, in a large measure, govern specific location of the sites to be selected. One of the main factors which comes up for consideration is that of freight-carrying transportation lines. Care must be taken in this instance not only to become carefully acquainted with those lines already established, but to study carefully the future plans as worked out by the rail and waterway commissions. The reason why this factor must be carefully considered is clearly revealed in the following diagram.

This particular diagram (No. 4.) shows the City of Detroit and its freight-carrying transportation lines, including the river. The heavy black shows the area occupied by factories and in every instance a factory extension of any consequence is to be found in the near vicinity of some one or other of these transportation lines. In most every instance you may imagine the transportation lines just about centering the blackened areas which you see upon the diagram. Similar studies of this character have been made in a number of cities, and the fact that factories tend to immediately grow up adjacent to freight-carrying transportation lines is invariably true. With this knowledge in mind it would be very short-sighted for a public school corporation to leave out of account the



JEREMIAH E. BURKE,
Superintendent of Schools,
Boston, Mass.

consideration of this problem in the location of its schools.

Another factor which should receive careful consideration is that of main thoroughfares, street car lines, etc. Particularly is this true in the location of elementary schools. For this purpose continuous consultation should be had with the city-plan commission which can aid greatly in prophesying the future. With such information as this commission is able to furnish, sites may be so selected that in the majority of instances small children will not be forced to cross fast travelled thoroughfares. It is obvious, of course, that every instance of this kind cannot be avoided, but it is always the responsibility of school officials to reduce such hazards to a minimum.

In addition there are many other important things, such as parks, recreation fields, etc., which should receive careful consideration in relationship to the location of school sites. In fact, every item of which we have knowledge in city planning, if it involves the use of land, plays such an important part in the location of school sites that if any one is neglected our future plant will fall just that far short of the ideal which every community hopes to attain.

After such preliminary standards of location have been set up and all known factors influencing location of sites investigated, can any community feel assured that it placed its school program on a sound basis?

Certain opposition is always to be found against such an ambitious procedure. The argument frequently advanced is that interest charges on the investment of property in the outlying districts would greatly exceed the advantage of early ownership of some sites which may not be used for a number of years. There are two perfectly good answers to this charge. The first is that in all probability the increased valuation will offset any interest charges which may accrue on such property that is not used for a number of years. The second and much more vital one, is that delay usually means the condemnation of land at a later time upon which buildings have been located, or a compromise on a location which in most instances is not as satisfactory as that which could have been made, had the matter been taken care of at an earlier time.

In the outlying districts which are sparsely settled some provision must be made for schools, and while the permanent building may not be started at once on the site located for future use, these sites do serve for temporary use as

well or better than temporarily rented or owned pieces of land. Such ownership of large sites in the outskirts will also permit, at the earliest possible moment that the population in these districts demands, the starting of permanent school units which may be extended as rapidly as needed into the ultimate buildings that will serve those districts.

Taken all in all, there seems no real argument of consequence against locating future sites which a school system is likely to demand at the earliest possible moment, and thereby assuring to the community that the educational needs will be promptly taken care of from time to time as demands require. To show concretely what such planning means for a large city, I desire to show what took place in the absence of any comprehensive program.

This diagram (No. 5.) shows the location of the elementary schools in Detroit in 1919. The dots in the center of the circles indicate the specific location of each school. The circles surrounding these dots are of one-fourth mile radius. You will note absurd congestion. One might easily assume that the large number of schools in certain limited areas is due to the congestion of population. Yet, when you are further informed that 85 per cent of the elementary schools at this time had an enrollment of 1000 or less and 27 per cent 500 or less, you can readily understand that there are many small buildings that are uneconomical and lack in proper educational facilities. While it has been impossible to correct all of what are apparent errors in the lack of planning, as evidenced by the location of the elementary schools in Detroit, it has been possible to make many improvements in the old, and, in a large measure, to almost perfectly safeguard the future.

(To be Concluded)

AN EDUCATIONAL FINANCE INQUIRY.

The American Council on Education announces the appointment of a commission to conduct a comprehensive investigation of educational finance in the United States. One hundred and seventy thousand dollars has been raised for the study. The Council has appointed a commission composed of recognized specialists in education, taxation and business to conduct the inquiry. The commission consists of the following persons:

Samuel P. Capen, Director of the American Council on Education, Washington, D. C., ex-officio.

Ellwood P. Cubberley, Dean of the School of Education, Stanford University, California.

Edward C. Elliott, Chancellor of the University of Montana, Helena, Montana.

Thomas E. Finegan, State Superintendent of Public Instruction, Harrisburg, Pa.

Robert E. Haig, Associate Professor of Business Organization in Columbia University, New York City.

Victor Morawetz, Attorney-at-law, New York City.

Henry C. Morrison, formerly State Superintendent of Public Instruction of New Hampshire, Professor of Education, University of Chicago, Ill.

George D. Strayer, Professor of Educational Administration and Director, Division of Field Studies, Institute of Educational Research, Teachers College, Columbia University, New York City.

Herbert S. Weet, Superintendent of City Schools, Rochester, N. Y.

Dr. Strayer has been selected as Chairman of the Commission and director of the work of the inquiry.

The primary aims of the educational finance inquiry will be to study in typical states and communities the existing program of public education, the extent to which this program is carried out and the present and prospective costs involved. It is proposed to investigate the relation of educational expenditures to other necessary governmental expenditures, the methods of raising revenue for the support of education, and the possibility of effecting economies.

The Clintonville High School Building

F. D. Wartinbee, Supt. of Schools

Few cities or villages, either large or small, have been more fortunate during the past few years in the matter of schoolhouse construction than the city of Clintonville, Wisconsin. Although this period, in so far as the construction of schoolhouses goes, has been looked upon as a non-construction period, yet this city was able during the time to plan and carry to completion the erection of a new high school building and thus escape the schoolroom shortage that has been, and is still, so acute throughout the country.

This small and yet beautiful high school building, exterior and interior cuts of which are shown in this article, is centrally located in the city, occupying a commanding position but a short distance removed from the city's main thoroughfare.

The building was designed by and erected under the daily superintendence of Parkinson and Dockendorff of La Crosse, Wisconsin, architects who have planned many of Wisconsin's finer school buildings and who are becoming recognized as among the country's foremost school architects.

The style of architecture in the building is the Jacobean with the Gothic in predominance both on the exterior and in the interior. It is a building so planned and constructed as to stand every test of good architecture. It conforms to the utilitarian requirements of the

most exacting schoolman, by the proper arrangement of auditorium, classrooms, corridors, offices and other rooms. It meets with the structural demands of building codes and engineering experts through the proper figuring of strengths and distribution of loads. It satisfies the esthetic tastes of those who appreciate and enjoy the architectural beauty in a building of its kind.

The building is of concrete, brick, tile and stone construction and is fireproof throughout. The exterior is of vitrified brick, with blue and buff Bedford stone trimmings. All the corridors, vestibules and stair ways are of re-enforced concrete construction with terrazzo floors. The lower corridors and all vestibules are wainscoted with pink Tennessee and yellow Kasota marble, while the toilets and showers have the pink Tennessee marble finish throughout. The interior woodwork finish of the building is the red oak.

Adopted the "T" Plan.

In general plan the building belongs to that type which is usually referred to as the "T" plan, a type which because of its conveniently arranged floor levels, its concentrated corridors, and many other utilitarian and administrative advantages is rapidly superseding all others in communities demanding high school buildings for enrollments ranging from 250 to 800 pupils.

This building was planned for the accommo-

dation of 400 pupils. It has a length of 140 feet and a depth over-all of 140 feet. The part of the building viewed in the picture has three floors, the floor space of which is devoted to vocational rooms, classrooms, laboratories, offices, etc., while the rear portion of the building forming the stem of the "T" has but two deep stories with the gymnasium on the first floor and the auditorium on the second floor.

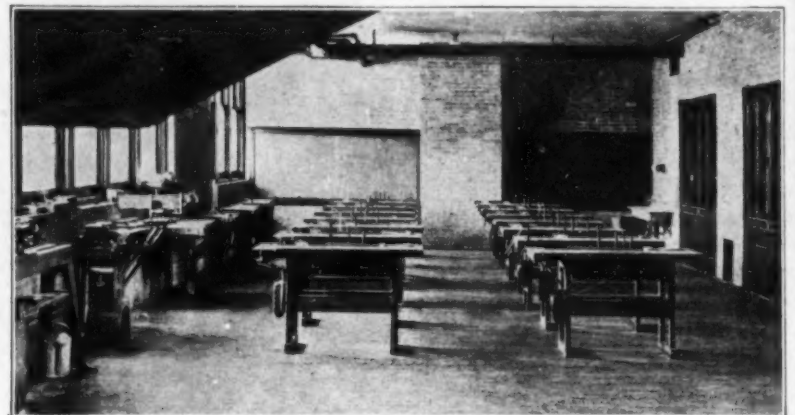
On the ground floor of the building which is on a level with the surrounding site are to be found the manual training and domestic science departments, the boys' and girls' locker rooms and showers, the gymnasium, the fanroom, plenum chambers, together with adequate corridors.

The manual training department includes a bench and joinery room, a machine room, a mechanical drawing and finishing room and the manual training department office. All of these rooms are well located for light and air and are so equipped as to care for the vocational needs of the boys of the city for years to come.

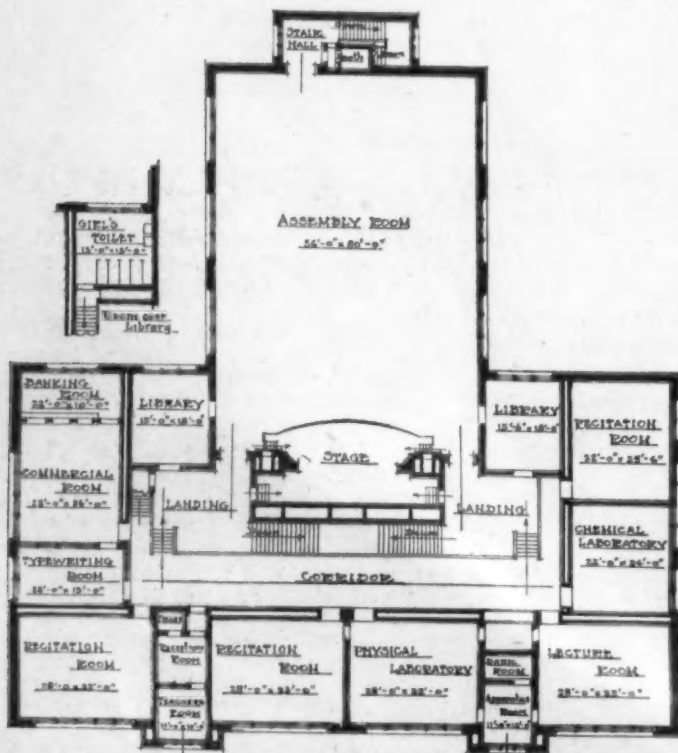
The domestic science department includes a domestic science kitchen, a sewing room with an adjoining fitting room, a dining room of ample dimensions, and the additional smaller rooms in the way of a pantry and storeroom. This department like the others in the building is furnished with modern equipment and is well supplied with built-in furniture such as a refrigerator, kitchen-supply cabinet, display cases, book cases and an abundance of drawers for the work of the individual pupils.



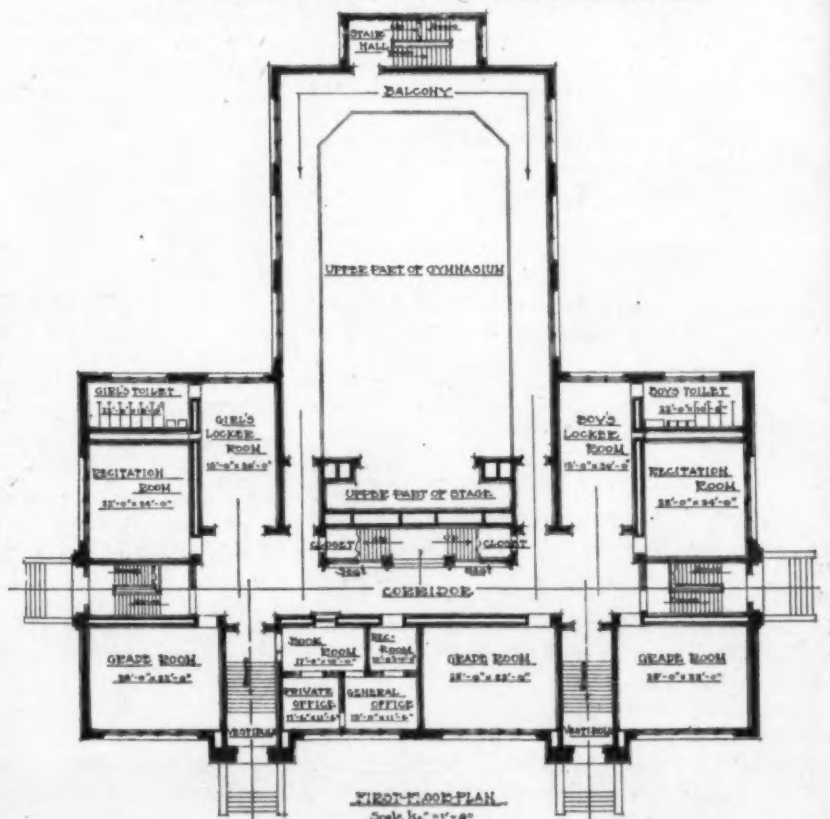
COOKING ROOM, CLINTONVILLE HIGH SCHOOL.



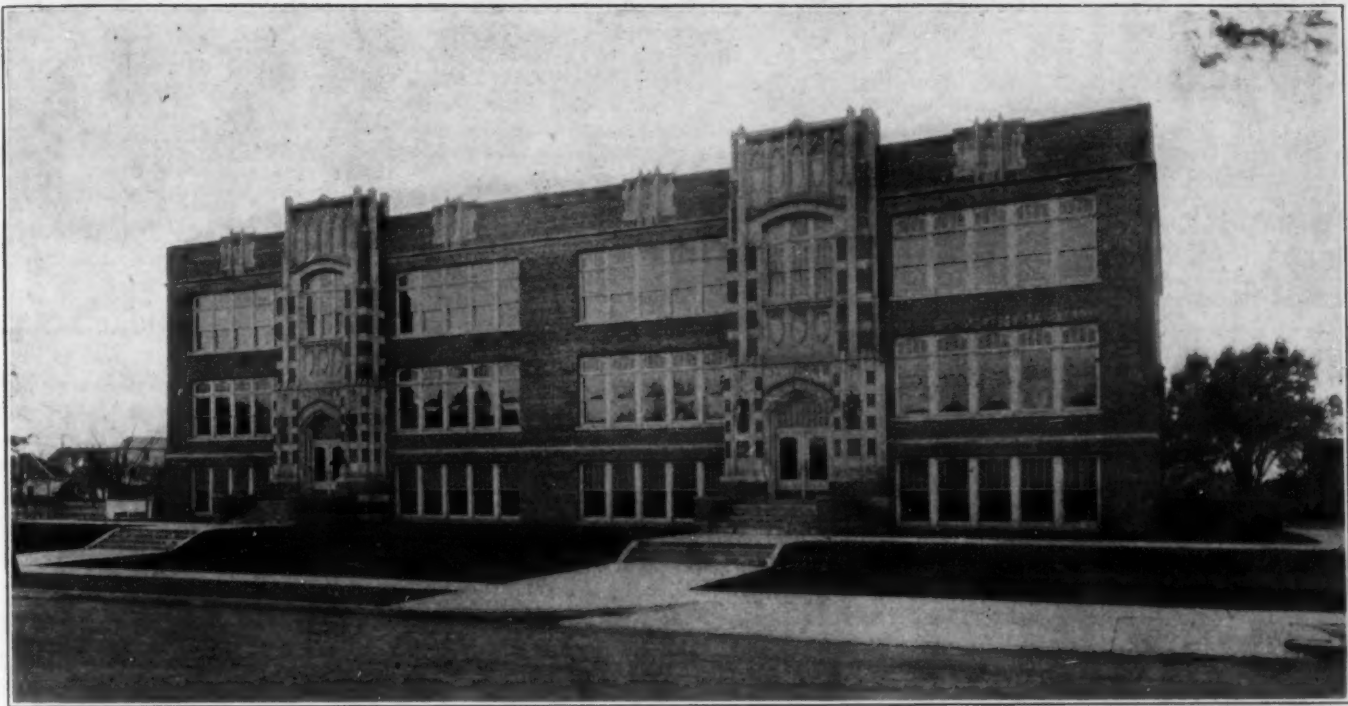
WOOD WORKING SHOP, CLINTONVILLE HIGH SCHOOL.



FLOOR PLANS, CLINTONVILLE HIGH SCHOOL, CLINTONVILLE, WIS.



Messrs. Parkinson & Dockendorff, Architects, La Crosse, Wis.



HIGH SCHOOL, CLINTONVILLE, WIS.
Messrs. Parkinson & Dockendorf, Architects, La Crosse, Wis.*

The gymnasium with its stage is on this floor in the rear of the building. It is a room 60 by 80 in dimensions and is complete in every way. Over the main floor and on three sides of the gymnasium is a gallery which greatly increases the seating capacity of the room, and also affords spectators the opportunity to witness basketball games and other indoor sports.

First and Second Floor Arrangement.

The first floor of the building is occupied by five classrooms; (marked grade rooms on the plans) a suite of offices consisting of general office, private office and reception room; a text and supply room; and students' locker rooms and toilets. The corridors on this as well as on the second floor are wide and all stairways leading to and from both are strictly fireproof. Double swinging doors lead from the first floor corridors directly to the spectators' gallery of the gymnasium, which is on a level with this floor.

A glance at the first floor plans will readily reveal how the boys' and girls' entrances lead directly to the locker rooms and how the boys' and girls' toilets become unmistakably such through their locations directly adjoining the rear of the locker rooms of each. The location of the superintendent's office near the center of

the main corridor and directly opposite the central stairway landing gives it many administrative advantages.

On the second floor of the building are the assembly room with two adjoining reference libraries, the science and commercial department rooms, additional general classrooms, and a teachers' rest room.

The assembly room is 60 by 80 in dimensions and will accommodate 400 pupils. It is provided with a stage and is constructed with an inclined floor. The two reference libraries are located on either side of the front of the assembly room and are separated from it by glass, thus making possible the supervision of these rooms by the teacher who is in charge of assembly room activities.

The science department includes a science lecture room with a chemical laboratory adjoining it on the one side, while on the other and separated from it by an apparatus room is to be found the physical laboratory. In this department such equipment as the apparatus cases, laboratory note-book cases, fume hood, aquarium, etc., are of the built-in type which means greater freedom and economy of time in the laboratory work.

The commercial department consists of a general commercial room with a typewriting room separated from it on the one end by a glass partition and a banking room separated from it on the opposite end by a 22 foot banking fixture. Closely adjoining these rooms is a room that may be used for shorthand classes.

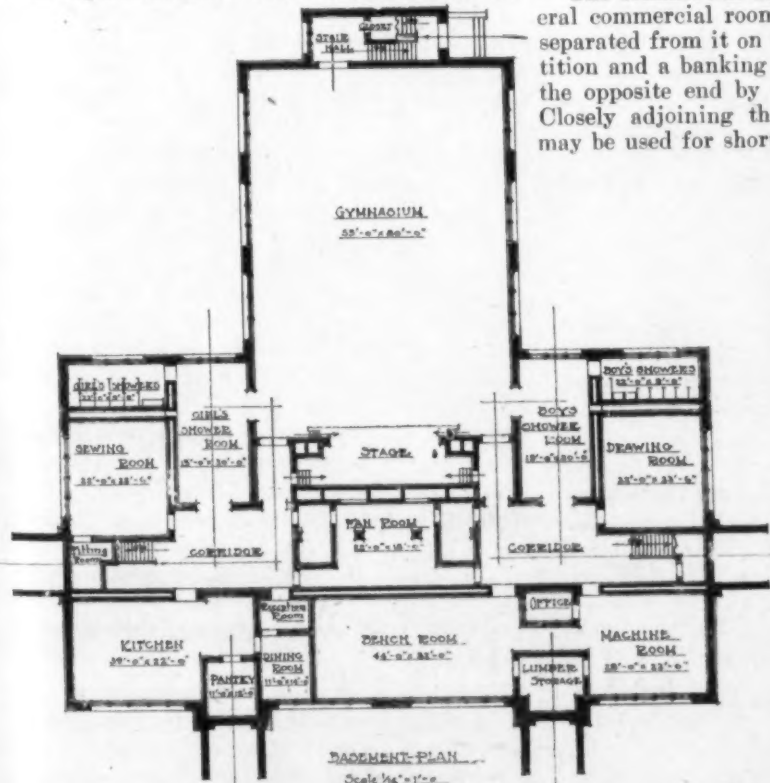
The heat for the building is furnished from a central heating plant which adjoins and furnishes heat as well for a near by grade building. The heat and ventilating system used is of the indirect-direct type, heat being furnished to the various rooms by both direct and indirect radiation. The indirect radiation, which insures a positive ventilation, comes from the tempering and re-heating coils located in the fan-room in the basement. The distribution of the warm fresh air is effected through divided plenum chambers by the individual duct system.

Although the building was erected during the time the building prices were at the peak, yet the work was carried on under contracts entered into two years prior to the time of completion, making the cost far less than even the present day cost would be. The cost of the building, together with the costs of the several systems and some of the equipment within it, are found listed in the table below.

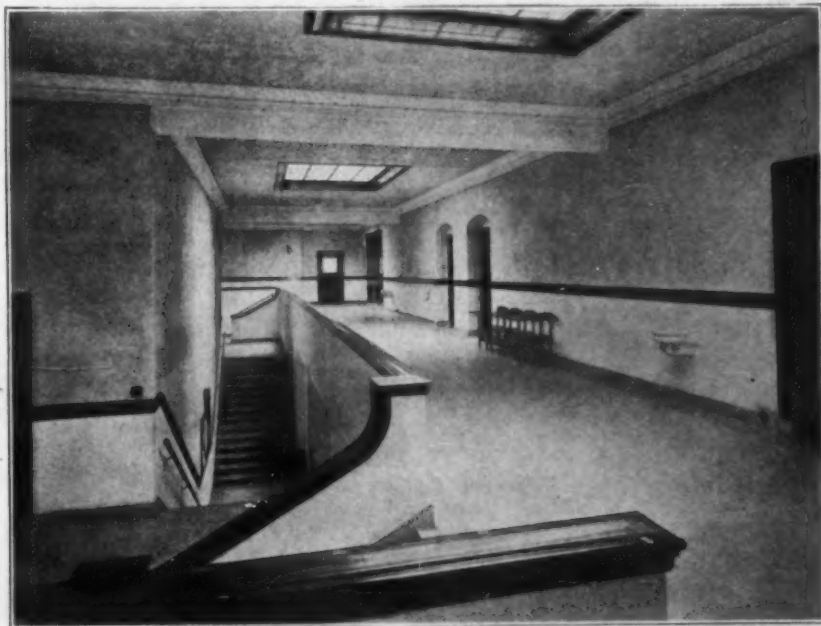
Cost of High School Building to June 30, 1921.
Building.

Architects' Services (paid to June 30, 1921).....	\$ 7,000.00
General Work	102,130.78
Marble Work	2,980.00
Heating, Ventilating and Plumbing	29,157.52
Heat Regulation	3,250.00
Clock and Program System	1,000.00

(Concluded on Page 181)



BASEMENT PLAN OF THE HIGH SCHOOL, CLINTONVILLE, WIS.



UPPER CORRIDOR, HIGH SCHOOL, CLINTONVILLE, WIS.



THE AMERICAN School Board Journal

WM. GEO. BRUCE } Editors
WM. C. BRUCE }

EDITORIAL

THE "DRESS PATTERN" SCHOOLHOUSE

Some remarkable achievements have in recent years been made in the field of schoolhouse standardization. The leading school architects of this country, as well as thoughtful school administrators, have recognized the utility of bringing the experiments and experiences in planning and construction into definite forms of expression.

But, architectural standardization has its limitations, or at least must be defined as to extent and scope in order that misconception and confusion may be avoided.

It is well established that the schoolhouses of the one-room unit type and up to four rooms, may be subjected to some rather close form of standardization, while those of larger size cannot be so treated, except as to certain details and dimensions, and in the arrangement of classrooms, shops and other similar fractional parts.

Schoolhouse standardization as interpreted by the best authorities relates wholly to the observance of well-defined requirements in the direction of economy and efficiency, permits flexibility in adjustments to immediate or local conditions and circumstances, and does not imply the fixed orientation and grouping of rooms and spaces regardless of educational uses and site, location or environment.

The standards that have been evolved have for their purpose the elimination of waste in space, the observance of minimum teaching requirements, and the achievement of utility from the housekeeping and school management standpoint. Flexibility is admitted, and adaptation is resorted to in order to secure the highest measure of school housing service. Inflexible standards would imply architectural misfits and architectural stagnation.

And yet, periodically, some one pops up with some ready-made, knock-down, set-up-while-you-wait schoolhouse scheme that means standardization, of the wrong kind. These schemes disregard climate, location, population or the educational practice and administrative programs and the educational aspirations and needs of the community. One plan is to serve for all communities for all kinds of students, and for all educational needs.

While some misconceptions are excusable, it would hardly seem possible that an intelligent citizenship would so grossly misinterpret the purpose of uniformity and standardization as to venture the following: "School buildings are much like packing cases for merchandise. They are destined for the same general purpose, and the only necessary difference in them is their size." This sentence appeared in an editorial in the Utica, N. Y., Observer, under date of November 18, 1921. In the vernacular of the day, can you beat it?

School buildings, according to this conception, can be turned out like soap boxes and fruit cans. All that is required is to provide the proper machinery that will produce them expeditiously and cheaply. Uniformity and mass production will make for economy.

This reminds us of the story told of a group of Chinamen who had watched the steamers that entered the Chinese harbors about the middle of the last century. They became ambi-

tious to build a steamboat themselves, and finally succeeded in constructing something that looked like a real steamboat, but had only one fault. It would not propel itself. They wondered what was wrong. Finally, one Chinaman remembered that the smokestacks of the steamers they had seen always emitted smoke. Here was the solution. Where there was smoke there was fire. All the Chinese needed was enough fire to emit smoke. So they built a fire in the hull of the boat and joyously watched the smoke arise. But, the fire incidentally destroyed the boat.

You may build something that looks like a schoolhouse, but that does not mean that it possesses the physical requirements for a real school. Schoolhouse planning is not a dress pattern affair, or a process of fabricating and assembling materials in accordance with ready-made plans provided on application.

Modern school architecture implies an intimate knowledge of the physical exigencies of site, of educational scope and purpose, and of administrative plans and of local constituency. It observes recognized standards in certain detail and units that comprise the whole, and then only where detail and units are amenable to standards.

The architectural scheme, as a whole, is subject to such compromise and adjustments as the surrounding conditions may demand, and as may tend to achieve the highest measure of utility. The results here to be desired are not secured out of ready-made schoolhouse plans, but must be secured through the highly trained and experienced schoolhouse architect and engineer, who studies each problem anew and constantly seeks progress, combined with economy, efficiency and beauty of plan and exterior.

THE MARRIED WOMAN TEACHER PROBLEM.

During the war period the school authorities were obliged to recruit the teacher service by retaining the superannuated as well as accepting the half-baked teacher in order to maintain a working force. The married woman came into the service, too, without being questioned.

Now that the supply of teachers is plentiful and the sifting, whereby the unfit are eliminated, is in process, the married woman teacher question once more comes under serious consideration.

And here we have the same old division of opinion. The theoretical and sympathetic defenders of the married woman teacher and the practical and duty-actuated opponents come to no common agreement or definite rule. The position of the one is based upon notional professional ethics, the other on the laws of life and living.

It develops in Detroit that there are about five hundred married women teachers in the school system of that city. Dr. John S. Hall, a member of the school board, recently made this startling statement:

"There are some who say that a woman can fulfill her duties as a wife and mother, and also as a teacher. Let us see how it works out. We have 354 married women teachers with husbands living, and they have only 35 children among them. That is a trifle under one child to each ten married couples. Is that fulfilling the purpose of matrimony?"

Here is food for reflection. What applies on a larger scale to Detroit, applies only in a lesser degree to thousands of smaller communities. Where the married woman maintains a childless home, keeps herself in a genteel occupation and earns pin-money by teaching school, whether the husband is an able bodied man and possesses the self-respect to support his wife or not, is regarded by the sentimentalist as being beside the question. The school authorities have no right, is the contention, to concern themselves with the social side of the teacher's life.

Well, we are old-fashioned enough to believe

that matrimony was instituted for a high purpose and that the home is a sacred institution. We are equally antiquated enough in our conceptions of life to believe that school authorities are concerned in all the ideals and standards designed to maintain the stability of society and the progress of civilization.

Those who foster and exemplify false standards of life and its mission should not be tolerated as teachers of the youth in the American schools.

WASTE IN PUBLIC EDUCATION.

School administrators, in finding adjustments between budget limitations and their actual needs, are delving more deeply into the economies which are designed to secure the maximum return on the dollar. There are those who are less concerned in finding new sources of revenue than they are in the determination that the revenues now at their command shall bring the highest measure of return.

For several years the struggle was to keep the schools a-going even on reduced standards of efficiency together with increased costs of maintenance. With the return to normal conditions the administrators are beginning to scrutinize more closely that which they buy and pay for. They exact quality in material and service. The workmanship in new buildings must adhere to standards, instructional supervision must be complete, the teaching forces must be more alert and effective.

Educators who in recent years were concerned in recruiting the professional ranks, and were fearful of an era of teacherless schools, now champion higher standards of service. The ranks are once more closed up. The supply has come somewhere near the demand for teachers.

But, there are teachers and teachers. The high class teacher is not as plentiful as might be hoped for, but the impetus for improvement all along the ranks of the profession is at work. With a rigid policy of discrimination in favor of the fit and the gradual elimination of the unfit, the standards are bound to be improved. Unfitness and lack of preparation, are believed by State Superintendent Francis G. Blair of Illinois, to be the greatest cause of leakage and waste in public education.

"Altogether the greatest element of chance which exists today relates to the character and qualification of the teachers," says this same educator. "It is still a mere gamble, a mere toss of the dice, as to whether the children who come down to public education shall find behind the desk a man or woman sufficiently endowed by nature and qualified by study and instruction to give the children an adequate return for the time and energy spent in the schoolroom."

The awakening of the educational leaders of the country to the demands of the hour is promising of fruitful results. Let the thought, that the day of cheap salaries and cheap teachers is a thing of the past and that boards of education stand ready to pay a good price for a good article, become fixed in the minds of the professional worker, and the upward and forward movement will be on.

SHORT CUTS IN SCHOOL ADMINISTRATION.

The Ayres report issued in the spring of 1920, under the auspices of the Russell Sage Foundation, whereby the rank of the several states on education is made, is still receiving some attention. It is a study which shows what the returns have been on the investment made in the American public schools.

Many of the states that had complacently believed themselves to be on a reasonably progressive basis received a jolt when they found themselves down in the lower half of the list. On the whole the result was accepted good na-

turedly. While Wisconsin became angry, a few others became peevish. The big educators of Massachusetts, New York, Ohio, Pennsylvania, Indiana and other states simply said: "Well, we don't show up very well. This ought to be an incentive. Let's do better!" and asked their legislatures for more adequate financial support.

The Illinois schoolmen, however, quietly made an investigation to ascertain whether the schools of their state deserved to be ranked twenty-seventh, and came to the conclusion that they had been penalized by their own statistical shortcomings and errors. In a report discussing various phases of the Ayres study as applied to the state of Illinois, they have urged the suggestion that "the possibility of uniting upon certain uniform definitions and principles for collecting and formulating the statistics in all the states should receive consideration."

This, undoubtedly, is a worth while suggestion. Comparative statements are never absolutely dependable unless the basic data is reasonably uniform and provides the same information in practically the same manner.

The suggestion, however, goes beyond the confines of a single state. It applies with considerable force to the entire system of school administrative record keeping as now exemplified in this country.

The efforts of the few who have recognized the present deficiencies have not been followed by the reforms sought. The United States Bureau of Education has for ten years cooperated with a body of progressive school accounting officers in stimulating uniformity without accomplishing the desired results. They acted upon the realization that the assembled information drawn from varied and variable systems and methods of record keeping is bound to result in confusion and inaccuracies.

The tendency, therefore, to secure national standards, a uniform terminology, systems of budgeting and accounting, deserves encouragement. The educational side, too, namely, so-called child accounting, should not be overlooked. In fact, where relative and comparative studies are to be made, the educational is closely interwoven with the financial.

To those who have given study to the subject of school administrative record keeping, it has become apparent that a scientific system is after all one that is simple, economic and serviceable. Such systems have been formulated and are readily accessible to every school system that desires to avail itself of its advantages.

SCHOOL BOARD-TEACHER ETHICS.

With the return to normal conditions in all the activities of life there is also a growing tendency towards a more agreeable and cooperative relation between classroom workers and their superiors. The thought that these relations have not in recent years been all that should obtain between the administrative factors and the workers may not seem warranted. And yet the close observer will know that the opening sentence of this editorial is well warranted.

We have all emerged out of a disturbed period into one of greater calm and reflection. The professional worker is once more turning his attention to the ideals of his calling and to a contemplation of the exact relations he holds to his fellowman. The leader in the domain of peace is once more weighing values and equities with greater discrimination and inspiring his followers to greater accomplishments.

The teachers themselves hold that they have not agreed upon an ethical code. Many have been proposed. As yet none have been accepted. And yet every professional worker, consciously or unconsciously, clings to some form of ethics.

A monograph dealing with the ethics of the teaching profession was recently written by Herbert D. Bixby, assistant superintendent of the Cleveland public schools, in which he not only deals with the ethics of teaching as a profession, and as applied to the individual, but also with the need of a code of ethics.

He discusses the rights and duties of teachers with remarkable clearness, the teachers' claim to adequate compensation and fair treatment, and the obligation to render loyal and efficient service, holding that each right carries with it a duty which applies to the community as well as it does to the school forces.

"As it is with the teacher and the community," he maintains, "so it is with the teacher and those who hold authority delegated by the community, the board of education, superintendent and all officers of the school organization. Such relationship should be maintained among these parties as will make for mutual confidence and good will. This does not necessarily mean agreement as to convictions. It does mean consideration for the opinions of others and loyal obedience to constituted authority."

"So, too, if the relationship of every member of the school organization to every other member were analyzed it would be found to be interdependent, and it would be found to be dual."

If the teacher has the right to a fair compensation and social recognition it follows that the service rendered must be adequate and that the character of the teacher must be such as to merit social recognition. If on the other hand the school authorities have the right to demand loyal as well as efficient service, they have the duty to accord proper compensation and fair and just treatment to those serving under them.

CHATS DURING RECESS.

"Some School Board!" exclaimed the editor of the Times, Bowling Green, Mo., after discovering that there are 22 children in the families of the six members of the school board of that city.

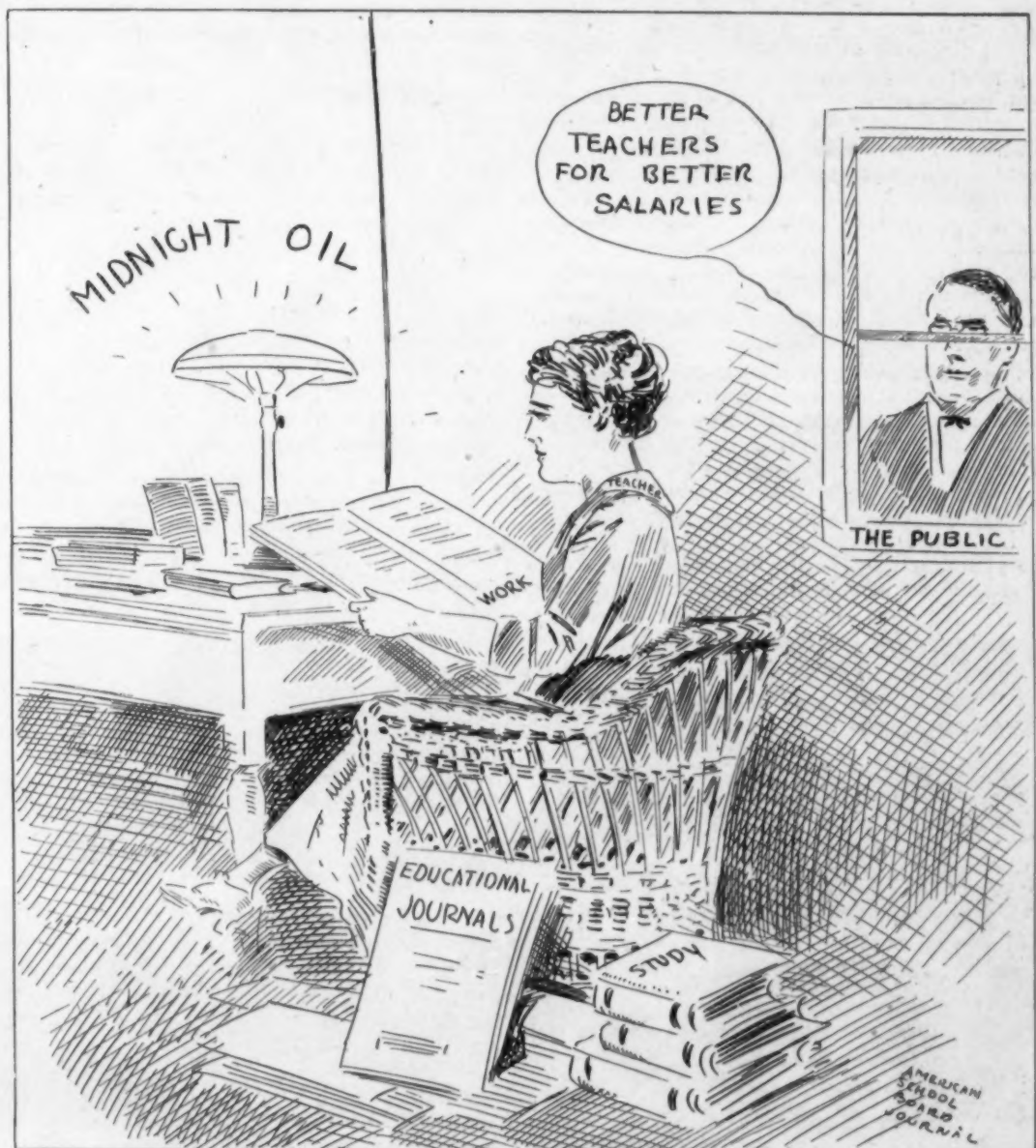
In the Leavenworth, Kans., campaign for more school buildings somebody attempted the slogan: "What are the kids worth?" Well, they come pretty high. Appraised by the fond parent every kid alone is worth the price of a sumptuous school palace.

What should be the attitude of the public schools towards the movies? School Topics of Cleveland, Ohio, wants to know. Well, for one thing, we ought to object to the bespectacled, scrawny female caricatured by the movie as representing the typical schoolmarm. How about it, girls?

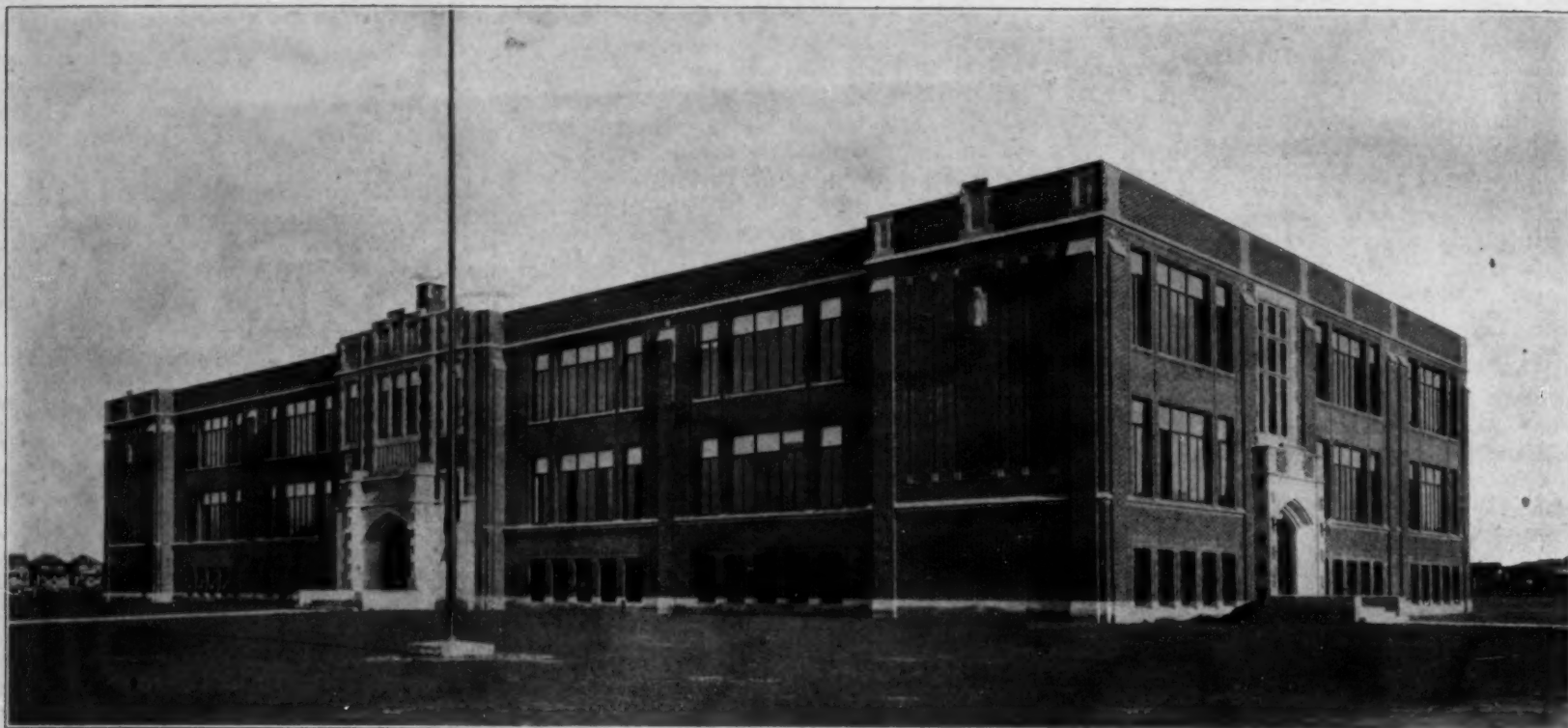
The world alternates between the long and short. Does anyone remember when school boards forbade schoolmarms from wearing trailing dresses because they brought street germs into the classroom? The order was shorter skirts.—And now—the order is reversed.

Yellowstone Park is to have a public school. And now the teachers who want to forget school and pupils when they visit the park will bump right into a full-fledged classroom. The American school is certainly an ubiquitous institution.

Another newspaper headline: "Freedom of School Board is Urged." Someone may ask, "What is that school board locked up for?" And then the editor explains that the school board ought to control more freely the tax funds for schools.



PREPARING FOR BETTER TEACHING SERVICE



PRINCE EDWARD SCHOOL, WINDSOR, ONT., CANADA.

THE PRINCE EDWARD SCHOOL AT WINDSOR.

The school board at Windsor, Ontario, has constructed what is said to be the largest and most modern public school in the Dominion of Canada. The Prince Edward building has twenty classrooms, but the system of organization makes it possible to accommodate 28 classes, representing an enrollment of 1160 pupils. Thirteen rooms are used for regular class work, while seven serve for the study of special subjects, such as literature, art, history, geography, music and supplementary reading. Use is also made of the auditorium, gymnasium and playroom for special room work. In addition, two classes are taken care of in the kindergarten.

The school is organized on a duplicate system, each of two sections having thirteen classes. Each division spends one half of the day in the regular classrooms, where reading, spelling, grammar, writing, arithmetic and composition are taught, while the remainder of the day is spent in taking up the special subjects already mentioned. All classes except the kindergarten are in the duplicate organization.

The duplicate system corresponds to the Platoon organization now in operation in Detroit and many of the other large cities of the United States. Windsor, however, has the distinction of being the first city in Canada to introduce the new plan. The citizens saw it in operation for the first time when the new school was formally opened November 3. The citizens saw the pupils at work in their classrooms and observed the manner in which changes are made

from room to room, with the result that the adults gave hearty approval to the plan, and lauded J. E. Benson, M. A., inspector of public schools, who brought about the organization.

The Prince Edward school, designed by A. H. McPhail and constructed by the S. E. Dinsmore Co., Limited, Windsor, has, although only in operation since September, gained a reputation, which has prompted school boards in other parts of the country to send representatives to Windsor to inspect the building and its duplicate system of organization. The total cost of the school, including lands and equipment, was approximately \$500,000.

WHERE TO LOCATE SCHOOL BUILDINGS.

The selection of a school site can no longer be left to haphazard methods. To ascertain the center of school population, present and prospective, note the relative advantages and disadvantages of location, and finally fix upon definite laws governing site selection, has received some attention in recent years.

The Cleveland Heights, Ohio, school board provides a notable example. That body instituted a scientific survey with a view of determining the several factors that enter into the question of schoolhouse location.

The survey establishes the fact that the first consideration in a comprehensive school building program is the character of the city. Is the community growing, what are its limitations of growth, is it an industrial or residential

city, or both? What type of schools must be provided?

The experts first provided a map showing the density of population in the several sections of the city and the ratio of growth experienced in them. Then another map was provided which dealt with the commercial, industrial and residential districts.

Then follow a series of interesting studies. After providing a map showing the present location of schoolhouses there follows another map showing where schoolhouses ought to be located, provided that the distance from school to school should be one mile.

Here the conclusion was reached that the child can readily walk a half mile to school. By drawing one-half mile circle about every present and prospective building, the discrepancies and misplacements were revealed. In other words, it became clear where children were obliged to walk long distances and where added school accommodations must eventually be provided.

After making a study of the placing of grammar schools the survey turned its attention to the location of junior and senior high schools and the relative location of one to the other. The map studies which have been provided have enabled the school board to plan a consistent and economical program for immediate and future schoolhouse construction and location.



Wood Shop.



Cooking Laboratory.



Library.

THREE INTERESTING DEPARTMENTS OF THE PRINCE EDWARD SCHOOL, WINDSOR, ONT.

The How of the School Lunch Room

George A. Nichols

In a previous article it was shown how the school lunchroom has, among others, two important objects: first, to conserve the child's health and general physical well being through the right kind of food—something he does not always get at home even in the better class and more well to do family; second, to provide a very important part of the child's education in training him in wise food habits and giving him an insight into the important problems of cooking, hygiene and buying.

The average school board, with progressive and liberal ideas about providing anything that may make the school's work more effective, is willing enough to admit that school feeding is really an essential part of the educational course. It may even recognize that a school without lunchroom facilities really represents an uneconomic condition inasmuch as money spent in instructing children who are not in physical condition to receive the instruction is really in large measure wasted. The draft of 1917 did a great deal to convince educational authorities of the need of this sort of thing. The almost unbelievable number of physical defects among the youth of America during the examination of soldier material showed for all time that the schools had a first hand duty to perform in the matter of providing the right kind of food for the pupils to eat and in giving them sound ideas for the control of their own eating habits.

Cost of Installation.

The first problem that naturally presents itself has to do with cost. Obviously it is impossible here to set down any definite figures because requirements will be widely different, and have to be adjusted in accordance with the local situation.

But generally speaking, it may be said that a school lunchroom may be installed in good working order at a price ranging all the way from a few hundred dollars up to several thousand. Elaborate equipment is not at all necessary and the installations that can be made for a few hundred dollars in the average school are absolutely practical and can fill the bill a hundred per cent.

A good way of getting at it is to compute how many children there are in the school and then figure how many could be served from the kitchen facilities existing in the average home. Proceeding on this basis it is but a simple matter of multiplication and the problem takes a more definite form. The best way of getting at the matter of cost is to get in touch with one of the complete equipment concerns. These will give the necessary information and can show in detail just the amount of equipment that may be required to fill certain prescribed needs. In



SERVICE COUNTER IN THE ACADEMY HIGH SCHOOL, ERIE, PA.
Walls, counters, etc., are washable; tables and stools are rugged and simple.

nine cases out of ten the necessary articles can be purchased out of stock and not have to be made to order. A range, refrigeration facilities, a modest serving counter, a few chairs and tables, cooking utensils, dishes, inexpensive silverware—there you have about all there is.

To give a concrete example of what is meant here by modest equipment the case of an eastern grade school can be cited. Most of the material here was contributed by friends of the principal. It consisted of two fireless cookers, two gas cooking stoves without broiler ovens, one gas radiator, six wire baskets for sandwiches, four cone racks, three wooden chopping bowls, six large tables covered with white oil cloth, six asbestos lids, one dozen tea towels, a half dozen pot cloths, six paring knives, one meat grinder, three granite kettles, a few other miscellaneous utensils and some dishes.

Then as to the operation. The writer has heard school authorities object to installing a lunchroom because they thought its direction was a matter for a rather highly paid expert. In a big city it is better to have an expert. Average sized schools have less to worry about in this respect than they have in the matter of installing equipment. A woman in the neighborhood

usually can be hired for a moderate amount to take charge of the cooking and serving. She may not be a restaurant expert, but her natural common sense and practice in domestic pursuits will enable her to render service. Very often it is found practicable for the woman to prepare some of the main eating materials at her home, the menu of the lunchroom is simple enough to enable this to be done with entire practicability.

Daily Bill of Fare.

The food can cover quite a range and still be well within the limitations as to the cost, service and preparation. Here for instance is a list giving suggestions as to the class of food to be served and the portions of each.

One hot wiener, with one slice rye bread.

Hot meat sandwich, consisting of chopped boiled beef, with two pieces bread.

One baked sweet potato in jacket.

Mashed sweet potato in cone.

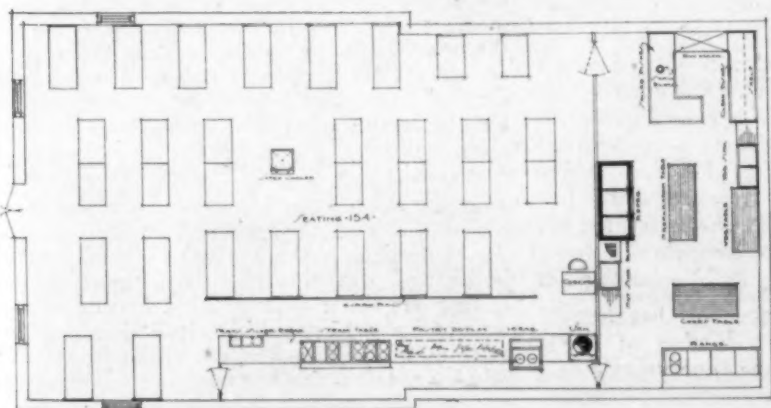
Rice pudding in cone (5 cent size),

Baked beans in cone.

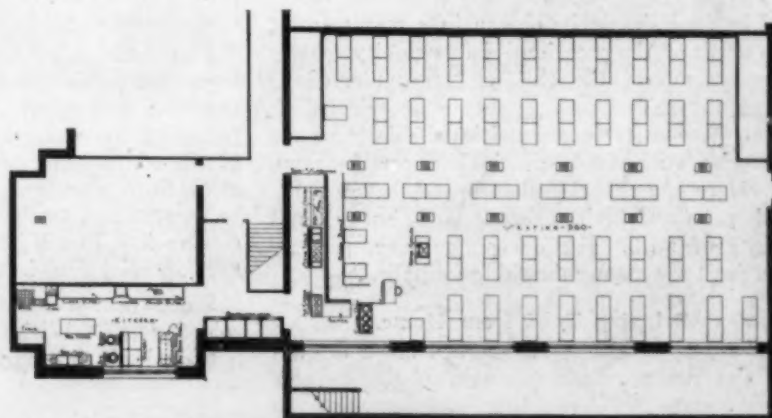
Baked beans with sausage in cone.

Boiled baked dried peas with sausage in cone.

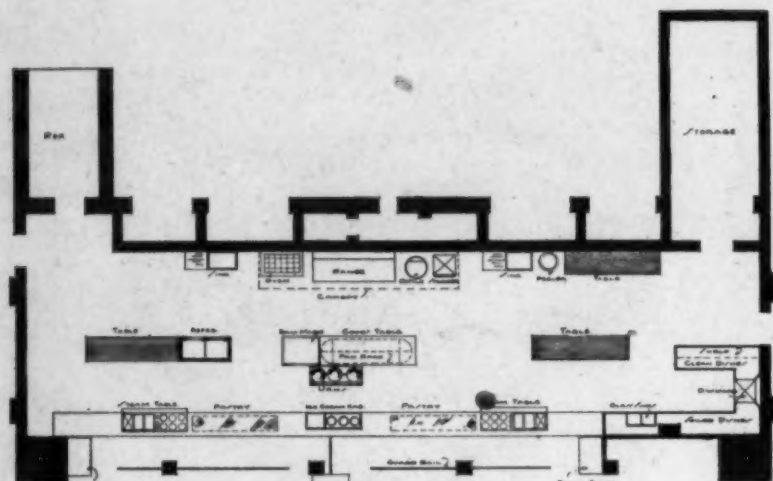
One orange.



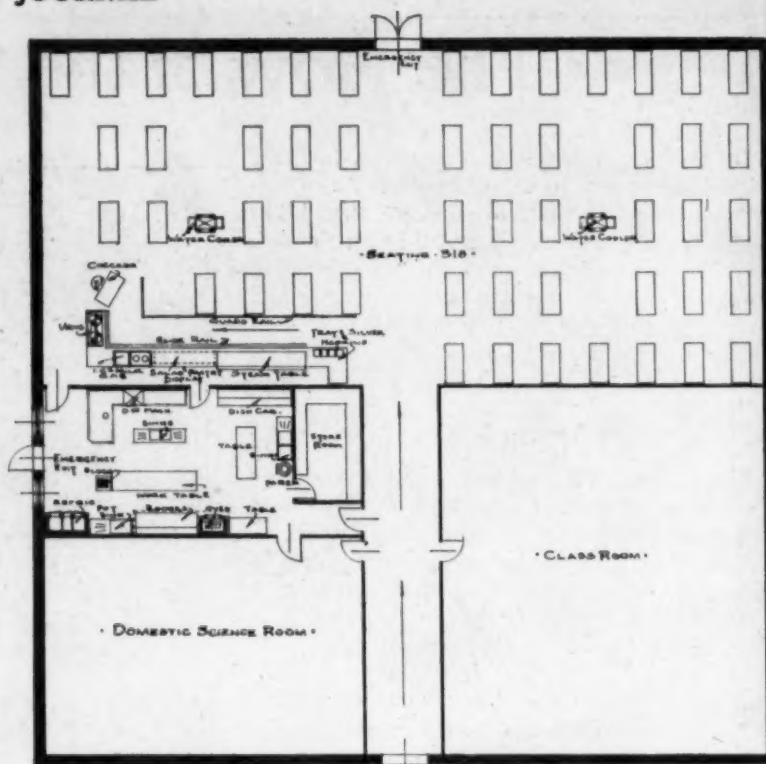
CAFETERIA AND KITCHEN, SAM HOUSTON NORMAL INSTITUTE,
HUNTSVILLE, TEXAS.



KITCHEN AND CAFETERIA ARRANGEMENT IN THE HIGH SCHOOL,
AUSTIN, MINN.



ACADEMY HIGH SCHOOL, ERIE, PA.



INDEPENDENT SCHOOL DISTRICT, DAVENPORT, IOWA.

- One apple.
- One banana.
- Three figs.
- Three Graham crackers.
- One Graham jelly sandwich.
- Ice cream sandwich, one Graham cracker with slice of cream.
- Half orange peeled and one Graham cracker.
- One candy ball (puffed wheat rolled in molasses and sugar).
- Five molasses candy kisses.
- Two small cakes.

It is best to change the bills of fare daily. In this way the offerings can be kept well varied and still be few in number each day. Based on the foregoing list here are sample bills of fare for four days:

1. Hot meat sandwich; baked sweet potato; oranges; candy balls; Graham crackers.
2. Hot wieners; rice pudding in cones; candy; bananas; cakes.
3. Baked beans with sausage; hot sweet potatoes; candy balls; ice cream sandwich; oranges.
4. Hot wieners; baked beans in cone; Graham crackers; candy; fruit.

Or the offerings can be more simple yet. Here is a fairly good menu for one day covering five dishes.

1. Soup, baked beans, or stew with one slice of bread.
2. One meat sandwich.
3. One jelly, cheese or salmon sandwich.
4. One cup of milk and two slices of bread.
5. One dessert, such as pudding or gingerbread.

The food should be chosen in a way to meet the needs of the occasion. In some city schools where some of the children are underfed at home the school food ought to be selected to meet this need. In some cities the daily menus comprise such foods as thick vegetable soup, porridges of oatmeal and cornmeal, baked beans and potatoes, besides bread and butter, and plenty of milk. For dessert popcorn, peanuts and fruit are among the things supplied.

Bringing Food from Home.

The proposition can be worked down to even simpler limits. Take the case of the country school where children bring cold lunches from home and where the number attending school

would make it impracticable to put in any great amount of lunchroom equipment.

Some country schools make provision whereby the children can warm their lunches. This is done by equipping an ordinary heating stove with a top for cooking. An even better way is to prepare a supply of some one food such as a hot stew or warm drink of milk or cocoa. It is an easy matter to have the children bring the necessary ingredients from home. One may bring a piece of meat. Others carrots, turnips, potatoes, milk and so on. The teacher can direct the preparation of the food with the older girls to help her. Thus the serving of school lunches can be elaborate or simple just as one chooses, and can be adapted without difficulty to the needs of various schools.

Business Way of Handling School Building Problem

J. E. Bullard, Eden Park, R. I.

Hundreds of American cities are finding it necessary to give the children half or possibly a little more than half of the school instruction that these children are supposed to get. Because of the shortage of school buildings these children can attend classes only half a day.

Information secured as a result of tests made on the recruits and drafted men during the war shocked our pride because they indicated a degree of illiteracy in this country that very few people believed could exist. In other words our school system has never been able to accomplish what we hoped and thought that it was accomplishing.

One would think that such a revelation would have resulted in a marked effort to remedy the trouble. Yet apparently it has not. Directly following the war many children were deprived of the educational advantages that the country owes them simply because teachers could not be secured and teachers could not be secured because school boards could not compete with business organizations in the matter of salaries paid.

Since then the salary question has largely solved itself. With the production of goods getting back to normal peace time volume and with more people out of employment and salaries and wages lowered it is becoming easier and easier to secure the teachers needed.

In cases where the food is prepared and served by the school exclusively—as it is in most cases—how much should the pupils be charged? Should the school make a profit? Should it come out even? Or should it stand a loss?

The best way is for the school to put in the equipment and then charge off that amount—in other words forget about it so far as concerns its relation to the making of prices on the food. Then the food itself can be served at actual cost including cost of purchase, preparation and service, except a small charge to cover upkeep and replacement of equipment. Worked out on this basis the food can be sold at prices amazingly low. Portions at two, three and five cents will be entirely possible and practicable and from there on up to a dime and fifteen cents.

The school building problem, however, will not right itself. Buildings won't grow and buildings suitable for school purposes are not going to be abandoned and offered at low prices to the city. It is necessary to build new buildings.

Indulging in False Economies.

But everybody is talking economy. Many a city government is in power because it has pledged itself to keep down taxes. It costs money to build schoolhouses. Someone must provide this money and in order to provide it the school tax may have to be increased. This means an increase in the taxes of the city and the present administration is going to lose votes at the next election. Under those circumstances these office holders cannot very well be blamed for doing everything in their power to postpone every expense that can possibly be postponed.

In the mean time, however, if this saving for the present takes the form of delaying the building of much needed schoolhouses, it may merely be laying up expenses for the future. If there is any one thing that we need in this country over and above everything else it is a thorough training of the minds of our children. If their minds are not trained properly we can never expect them to perform their duties as citizens intelligently when they grow up. Some one has

(Continued on Page 66)



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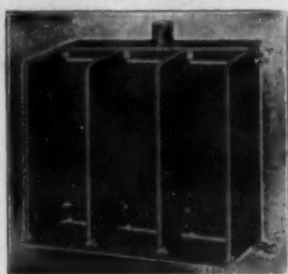
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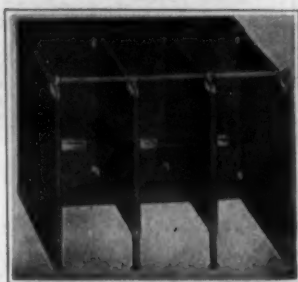
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(Continued from Page 64)

said, "where the intellect is weak the prejudice is strong."

All our troubles between labor and capital and much political ill feeling to say nothing of some crimes are the direct result of strong prejudices. A good education for every boy and girl would go a long way towards lessening if not entirely eliminating strong prejudices. Surely everyone will admit that the poor boy who keeps right on acquiring an education until he has graduated from college is a better citizen and a man with less dangerous prejudices than a boy who has gone to school little if any and has grown up without having received an adequate education.

This all means that if we deprive the children of today of the educational training they should have simply because in the effort to keep down taxes not enough school buildings are provided the time may come when we will have to pay for strong prejudices not only in taxes higher than would otherwise be necessary but also in higher prices for everything that we buy. It is apparent that delay in building school buildings is not only morally wrong but that it promises to be a very short sighted way of economizing.

Building Program Essential.

There seems to be but one workable plan that will ensure adequate school facilities for in some cities we find a chronic state of school building shortage. It seems that until there is a definite building schedule laid down by law so that whether or not building shall be built at certain times no longer depends upon the vagaries of politics we cannot hope to have adequate seating for all the children who are entitled to educational facilities. Today in many of our cities the only children who are assured of proper educational advantages are the children of parents who have incomes sufficiently large to make it possible to send these children to private schools. Yet we boast of our wonderful free public school system.

It does not require a very exhaustive study of the census figures of any of our communities to be able to foretell with a sufficient degree of accuracy just what the building requirements will be in that community for the next ten, fifteen, twenty or thirty years. The information is at hand and the statement that not so large a number of school children was expected is no excuse for not building new buildings. Anyone who studied the census figures with even an average degree of intelligence could have foreseen that this number of children would be attending school today and that if more buildings were not provided there would be no seating facilities for them.

We have the data in regard to the future building requirements. All that remains is to take steps to make certain that this data is used in the right way. This means passing city, county, state or national laws, or a combination of these that will require every community by law to follow a school building program based upon the data furnished by the census figures.

Anticipating Future Needs.

Given the census figures and the data in regard to the present school buildings and an expert will have no trouble in estimating with a great degree of accuracy the number of buildings that will have to be built in any community during the coming fifty years, and how large these buildings should be and when they will have to be built. This means a businesslike building program, one that is not dependent upon the whims of any building committee.

It also relieves the school board and the city government of much responsibility. Neither must decide when and how large a building shall be built. It has all been determined for them with scientific accuracy. It is merely a matter of carrying out a program that has been laid out by an expert. Disgruntled tax payers will not be able to point to a large new school building and accuse the city of spending more money than it should and if under the present plan

adequate school buildings are provided there are a good many tax payers who do this very thing.

The average person has no idea of the rapidly growing requirement for school buildings. He does not realize that there are not enough buildings or that they have not been built fast enough until his own child comes home from school with a note stating that it is necessary to divide the class into two sections, one to attend school in the morning and another in the afternoon.

If enough buildings had been provided in advance to provide sufficient seating capacity and this person is a tax payer he would no doubt have felt sure that the city government was spending a needless amount of money on school buildings and in that way increasing his taxes. This would make him grumble. When he learns that his child is being provided with only half the education that he has come to expect the city to provide, he grumbles because the school board and the city government are not performing their duties.

Guesswork Becomes Costly.

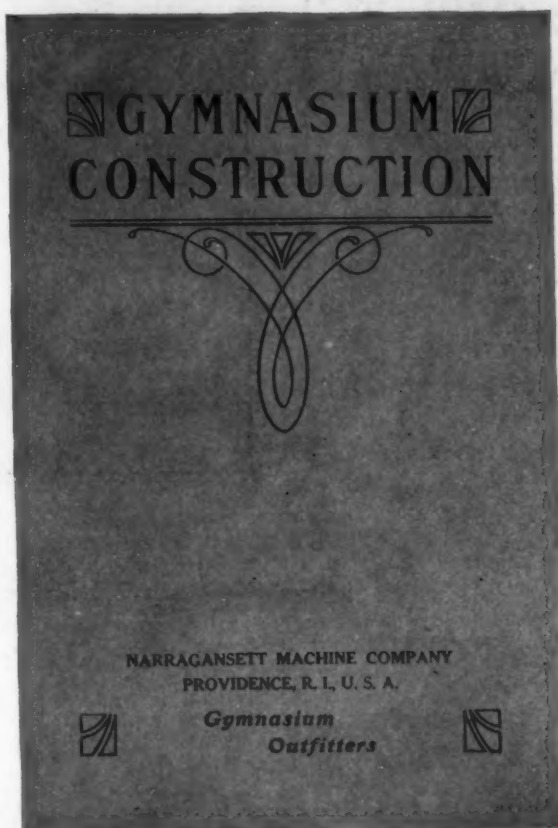
In both cases he is not satisfied. But the cause of his dissatisfaction is due to ignorance. Let a program be laid out, have this published in the newspapers together with enough data so that the average person can see that these buildings will be needed and the proposition takes on a new light. These figures will give him information that will tend to make him proud of his city. Then when he sees a new school building he can point to it with pride and can give data that shows what a prosperous and growing city he is living in.

The great trouble at the present time is that far too much guessing is being done. Those whose duty it is to look after the building of new school buildings guess that it will be possible to get along a little while longer with the present buildings. They guess that it will be cheaper to build in another year. They guess this and guess that. The people guess that the city offi-

(Concluded on Page 68)

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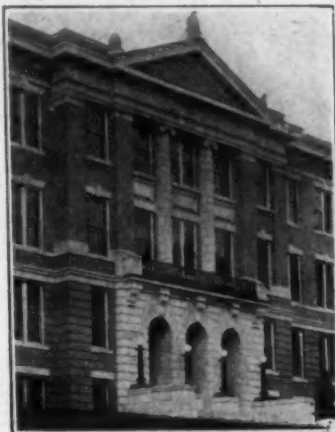
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(Concluded from Page 66)
cials and the school board are extravagant in the building of buildings or that they are lax in their duties because they do not build enough of them. Where there is so much guessing, there can be very little satisfaction.

Eliminate the guessing, base the building program on hard facts, require by law that this building program be carried out and the guessing is eliminated. Give sufficient amount of publicity to the program and it not only becomes necessary to carry it out but also gives the people

confidence in the wisdom of the program.

Though it is better to have this program fixed by law, this is not altogether necessary. Publication in the newspapers of a carefully worked out program together with enough data to make it evident that the program is right is bound to do away with a lot of the fault finding and complaining that results when the people are left in the dark in regard to the need of school buildings and the building program that has been decided upon.

A teacher who ought to be in the seventh grade may find herself in the first; a slight young teacher may have been given a gang of toughs, while her athletic sister is pestered by a roomful of mother's darlings down in the primary room; a girl who, given a small school could gradually achieve efficiency, may fail in a one-room school of 65 pupils. But the sincere, alert school man can nearly always distinguish between inherent failure, and lack of success in a given position.

It is not always easy, in fact it is very hard, to drop a teacher from one's own corps, then not be able to say the word that would help her secure a position elsewhere. A girl should be given every possible chance; but when her superintendent *knows* that she is harsh, incompetent, or otherwise inefficient, he owes it to the entire profession,—to himself, his teachers, the pupils, and to the girl herself,—to be honest about it.

He owes it especially to *her*. I shall never forget a remark that the head of the shoe department in a large store made to a woman who returned shoes that were a misfit. When he asked her to identify the saleswoman, she said, "Before I tell you, I want to know what will happen to her. If she will be required to make good the loss, I don't want to tell. I'd rather lose it myself." In a more courteous way than I can put it on paper he said, "Madam, that is mistaken kindness. The sooner that girl learns that when she says a shoe fits it must *fit*, the better it will be for her;—to say nothing of those who buy from her."

It is a mistaken kindness to give an endorsement of work to a failure. The teacher who is a failure ought to know the truth. If she can, and will, remedy the trouble, all right. If not,

(Concluded on Page 72)

What Is Your Signature Worth?

A Superintendent's Wife

This does not mean, What is your signature worth financially? To what extent will your bank honor your check? Questions like that might be slightly mal apropos among schoolmen and women.

It means, What is your signature worth ethically? To what extent will your confreres honor your professional endorsement?

When school men discuss each other from this point of view, evaluations are interesting, sometimes amazing. The rates of exchange vary for the different signatures. Fortunately most of them are rated high. There are school heads, many, whose favorable recommendation of a teacher is practically equal to election. In a group lately one of the men said, of a normal school principal in a neighboring state, 'When a girl brings me his word of approval I inquire no further', and every one in the group agreed with him. Many men of our own state rank equally high in the opinion of their associates, because, hard as it often is, they try to be honest; they keep their word where it means some-

thing. And all men know *what* it means.

The teaching profession is made up very largely of noble men and women. But, as in other walks of life, there are occasional weaklings, or those who, at least have a *weak heart*.

There labored in this state, in the near past, a certain man whose word on pedagogical questions, and matters of administration, carried much weight; but to those who knew him, his name attached to a recommendation meant nothing at all. His testimonials were dropped into the waste basket, often without being read. It was the policy of one of the state committees to waste no time on such a paper from him. Why? Because his words were always favorable. No exceptions.

Mistaken Kindness an Evil.

There are of course circumstances where a teacher who has not been a success in one position, may be very satisfactory elsewhere. *Misfit* and *failure* are not synonymous; and the misfit may be the school, fully as much as the teacher.



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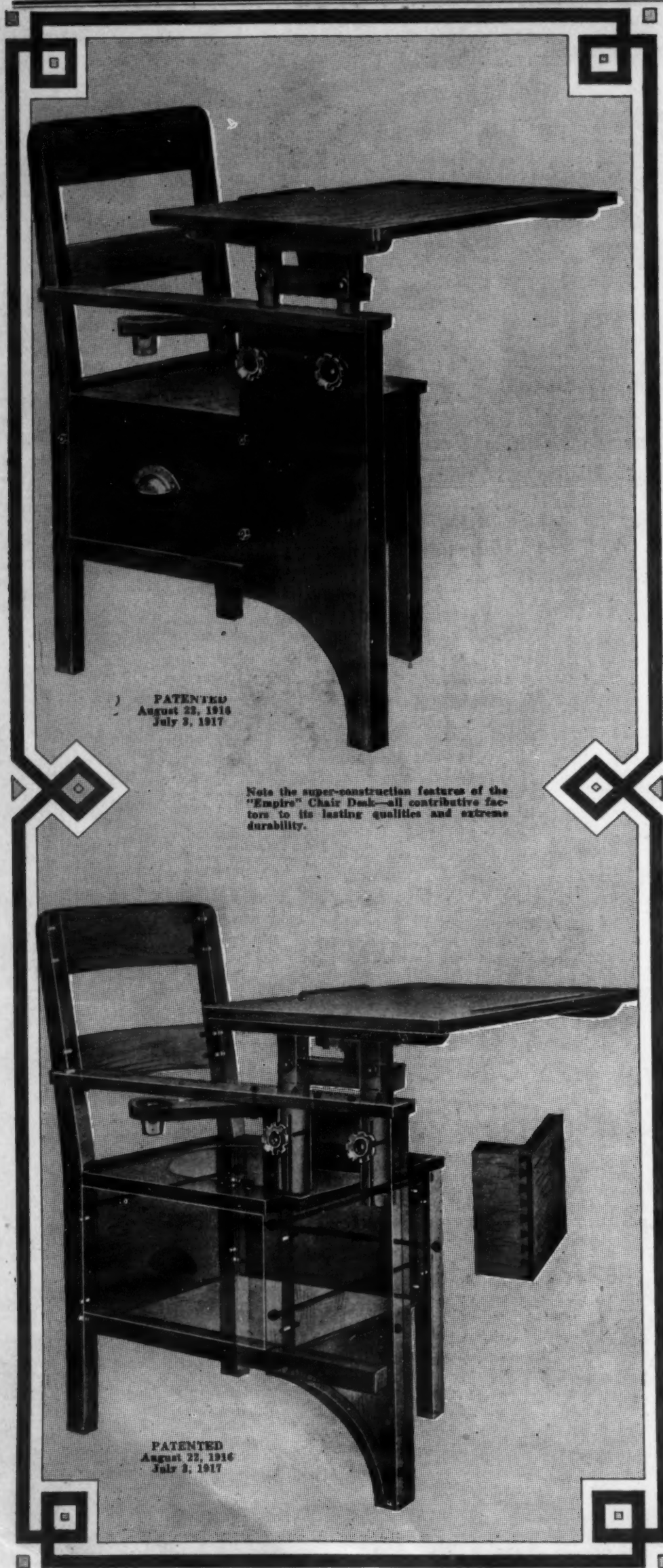
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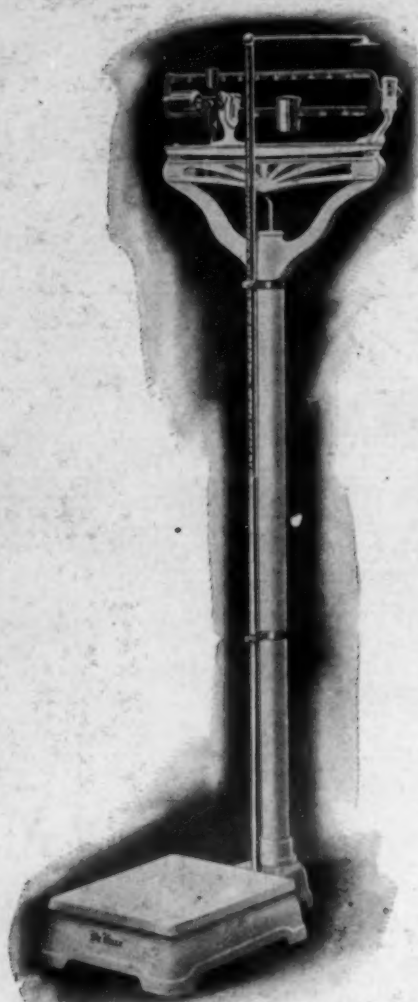
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(Concluded from Page 68)

she had better take up some other line of work.

But how is she to know, and how is the other fellow to know, that she is a failure, if the testimonial in her hand, with her superintendent's name to it, endorses her?

Some people expect the reader to "read between the lines", a proceeding that admits of quite too much variety to be satisfactory. One can read almost anything between the lines, according to the attitude of the reader.

A Few Sample Recommendations.

A recommendation ought to say what it means and mean what it says. There are, I confess, times when it requires almost superhuman dexterity to be both courteous and honest. A city judge met the situation this way:

'Dear Sir:—Miss Brown has asked me to write to you in her behalf. I have known Miss Brown for a number of years. Having written you, I subscribe myself. Yours sincerely,'

Here is one from a city superintendent, so plain that he who runs may read:

'Miss — has taught in the schools of this city during the present school year, and has been very prompt to meet all her appointments. Yours sincerely,'

A physician wrote:

"I consider him qualified to fill any position for which he is fitted."

This one, by a state superintendent, is nearly as short, but differs in a few important words: "I have no hesitation in recommending him for any position for which, in his own judgment, he is willing to apply."

Of course one can always write across a reference blank "I have nothing to say," but that in itself is condemnation. When a superintendent's name is given as a reference, and the testimonial is never seen by the solicitor, the situation is very much simplified. But sometimes other considerations enter in. "It is an

easy (but expensive) way to get rid of a teacher.' But it is not fair, not good sportsmanship. We criticize teachers who lack the courage to mark report cards honestly; the superintendent who gives a good testimonial to an inefficient teacher does something equally unfair, and far more harmful.

Recommend. What does the word mean? To recommend. How can I recommend a teacher whom I can not commend to begin with?

The teacher who is a failure (not a misfit) is a *failure*, and it is unjust, to put it mildly, to pass her on to worry another superintendent, to retard and make unhappy another group of children. Besides, how am I going to square my conduct in dropping her, with the favorable words over my signature? We have all heard of some very unpleasant results of such procedure.

Head or Heart Endorsements.

It is not alone schoolmen who are tempted to write contrary to their better judgment. One of the most trying situations that ever came to the superintendent whom I know best, was brought about by the testimonial of a clergyman of wide experience. When he learned the state of affairs he had been influential in bringing about, he said, "I'll acknowledge to you frankly that I gave that endorsement with my heart, not my head, and against my wife's earnest protest."

Teachers' Agencies have these same problems to meet, and the majority of them meet the obligation squarely, honestly. Endorsements by some of these managers are rated very high on the exchange. Of one such man I have heard superintendents say repeatedly, 'If he says an applicant is good she's good. When he has no one whom he can fully endorse he says so.

Then he goes over his list and tells you as honestly as he knows, just what he has there.' Needless to say, his agency is a success.

Boards of education face this question of testimonials as variously as do schoolmen. Last year one board in this state asked for the resignation of its superintendent, then gave him an endorsement that secured for him an important position, and laughed to think how easily they rid themselves of him. They did not think beyond the walls of their meeting room. They did not think of that other board of education, that other group of teachers, those other children, on whom they were foisting incompetency that might, and would, affect their entire school career, and so their lives.

It is a serious matter, that reacts on hundreds of children, when, for instance, through improper heading up, a system of schools is dropped from the approved list for colleges; or when the graduates fail to make good in the business world.

These same men would not have recommended an incompetent physician for the other town's children, nor even an unreliable grocer; but "A schoolman—well, that's different."

"Something must be done to stop this epidemic of matrimony among our women teachers," said Dr. John S. Hall of the Detroit school board. Well, what's to be done? Shall marriage constitute a resignation, or, shall we choke Dan Cupid?

Here is the way the Mercury of New Bedford, Mass., has it: "The school board began with a chorus of jazz occasioned by the sudden rush to purchase violins for aspiring school children. The jazz quickly developed into razz when the question was raised as to the mayor's authority to order anyone to make plans for a municipal Christmas celebration."

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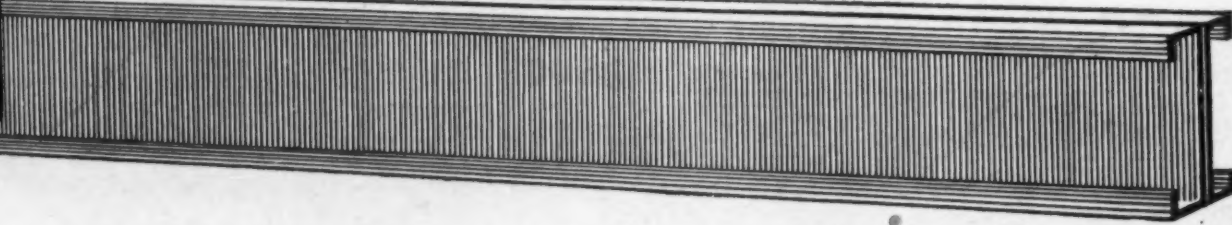
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DAYTON, OHIO



—Allentown, Pa. For the first time in the history of the schools, women will serve on the school board. Mrs. Sallie Heckrotte DeMols, a former teacher, and Miss Anna Grim have been elected school directors following a recent election.

—The Associated School Boards and Trustees of New York State have chosen W. L. Thompson of Troy as their president. The other officers are vice-presidents, Harry W. Lowell, Lockport; J. Ward Russell, Glen Falls, and J. S. Treman; secretary, Chester H. Smith, Peekskill; treasurer, George D. Thatcher, Auburn. Executive Committee, R. D. Rogers, Tuxedo; A. C. Rust, Poughkeepsie; Mrs. H. L. Baldwin, Oneida; John F. Kelly, Binghamton.

—Elective boards of education with complete control of school finances, maintenance of present salary laws, and increased support for the rural schools are to be recommended in the legislative program of the New York State Teachers' Association.

—Charleston, W. Va. The board has purchased a block of ground in close proximity to the high school. The school will take possession of the property next semester. Mr. W. H. LaBoyteau, a former student of the school and now a successful businessman, has presented to the school a lot adjoining the building to be used as a playground.

—El Dorado, Kans. The board has entirely reorganized and re-written its rules according to the best modern practice and in keeping with regulations governing the newer departments of the schools.

—Some time since the schools of Wherling, W. Va., were surveyed by the U. S. Bureau of Education and one of the results is that the board in the future will consist of five members

elected at large on a non-partisan ticket instead of electing as at present twenty-one members on partisan tickets.

To the Superintendent is given power of appointing, transferring, promoting, demoting and dismissing teachers and other employees, except the Clerk, subject to approval by the board.

—Minneapolis, Minn. The school board has been asked to assign a representative to attend a meeting of city boards and department heads to discuss methods of conducting a proposed employment classification and salary standardization survey.

—Ilion, N. Y. The number of members on the school board has been increased from three to nine. Mrs. Atherton Tucker is the first woman to be elected to the board.

—Tiffin, O. Mrs. Ida Stacy was elected a member of the board of education. Mrs. Stacy is the first woman to serve on the local board.

—Concordia, Kans. A new system of financial record-keeping has been adopted for the school system.

A writ of mandamus, asking that she "be restored to her rights in the public schools," has been filed at Knoble, Ark., by a pupil who was dismissed from the eighth grade by the board for using a face powder. Early this year the board issued a statement that no face powders, cosmetics, rouges, peek-aboo waists, thin stockings, or abbreviated skirts would be tolerated if worn by students in the schools.

—The school board reform movement at Indianapolis which caused bitter charges and spilled columns of newspaper ink, culminated when the three reform candidates were elected to school board membership beginning with January 1. They are Dr. Marie Haslep, Adolph G. Emhardt and Charles L. Barry.

—The use of the schools for church fairs has been denied by the Waterbury, Conn., school board.

—The legislature of British Columbia proposes to put an end to the "shameful extravagances" of school boards by placing one member on every school board who shall be chosen by the city council, and where there are more than three members constituting a school board, two shall be chosen by the city council.

—The Minneapolis school board was placed in

the dilemma of cutting \$173,000 from the budget with the result that the teachers' salaries would have to be cut, the summer school abolished, or the night schools eliminated. It decided that the cutting of salaries and the closing of the summer schools was unwise, and therefore eliminated the night schools on the assumption that the children under the age of sixteen were entitled to first consideration.

A plea for an independent board of education, free from the restrictions placed upon it by the board of estimates, the city purchasing department, and the city treasurer, has been made by Superintendent B. B. Jackson. "The best educational interests cannot be attained," he said, "where a board of education finds itself tied up with other functions of the city government."

—"A measure ought to be passed by the legislature," said Superintendent David Gibbs of Meriden, Conn., recently, "which will wrest the control of the schools from the hands of political rings. They are holding back the progress of the schools in the state."

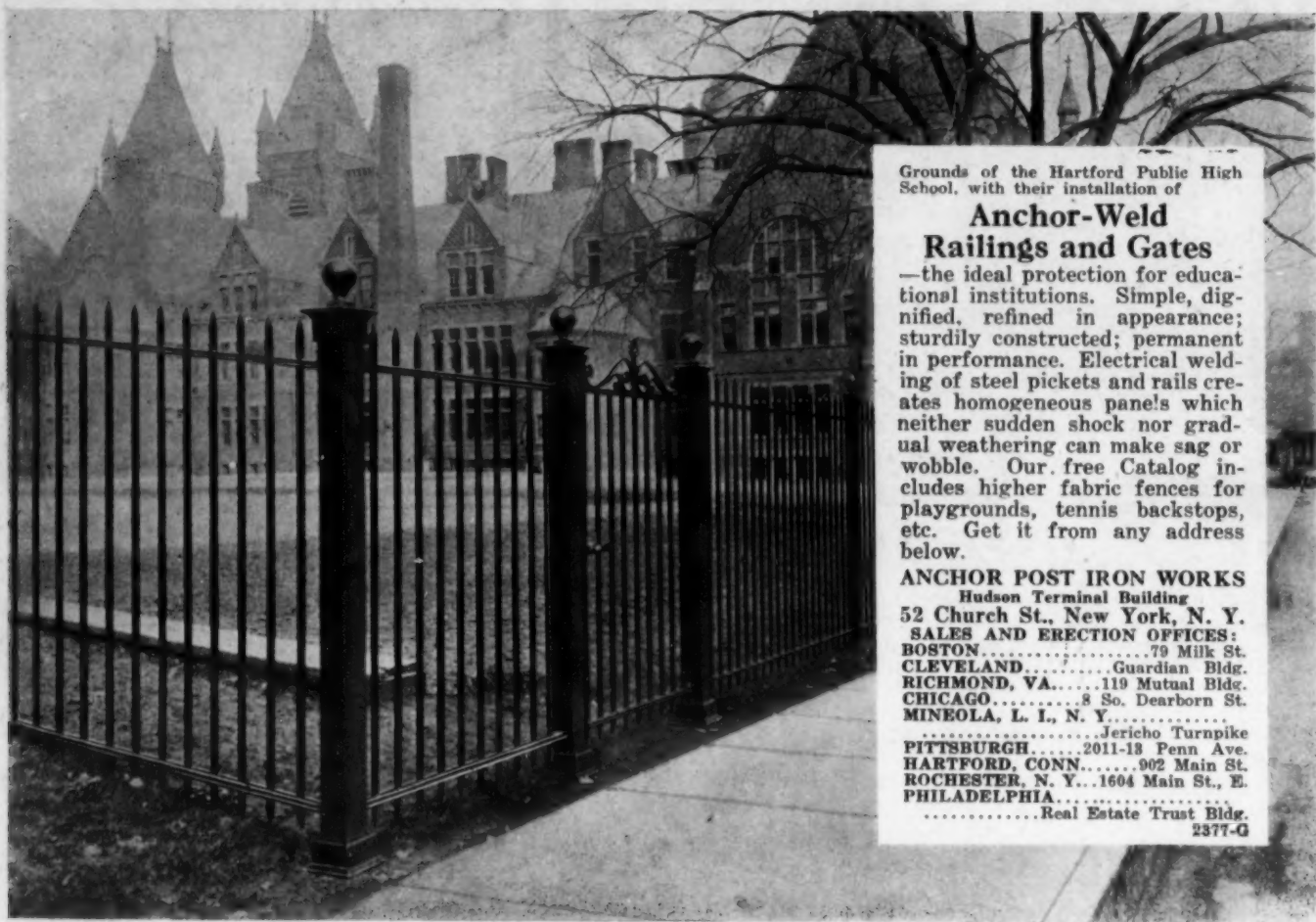
—The teachers of Ohio favor the creation of a non-partisan state board of education appointed by the governor. It will require an amendment to the constitution of the state to bring this about.

—Under the caption of "The Schools in Danger," the Louisville, Ky., Post tells how a political organization sought to swing the teacher vote by claiming that "the Republican party of Louisville will provide large salaries for the teachers while the democratic party will starve the schools."

—The Knoxville, Tenn., school board, after closing its meetings against newspaper reporters for the past five years, has decided to hold open meetings hereafter.

—The school board of Hattiesburg, Miss., raps dancing, and has instructed the teachers to supply the pupils with enough home work to keep them busy for five nights a week and to discourage dance hall attendance.

—New York, N. Y. The board of education has continued the ban against drives for funds in the schools. In this direction, the board has denied a request that each child give a minimum of ten cents toward a fund for the Bronx Academy of Medicine Building.



Grounds of the Hartford Public High School, with their installation of

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NEWS OF SCHOOL OFFICIALS.

—Mr. J. H. Thornton and Mrs. T. W. Bell were recently elected members of the board of education at Sistersville, W. Va., Mrs. Bell is the first woman to serve on the local board. Mr. W. G. Maxwell has been elected secretary of the board.

The old board composed of Dr. Grier, Dr. V. H. Dye and Mr. R. E. McCamey made an enviable record as a result of the payment, during the term of office, of the largest school debt in the history of the school district. The new board begins its labors with a clean slate. An extensive building program has been planned to meet the increased enrollment and expansion of the curriculum.

—Mr. C. F. Nebelung has been reelected as a member of the board at Bryan, O., after 25 years of service.

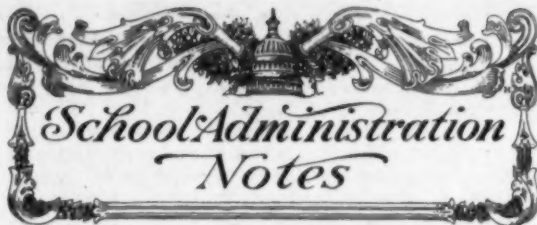
—Dr. Paul Baldwin has been unanimously reelected president of the board of education at Kennett, Mo., for the year 1921-22. Dr. Baldwin has served continuously on the board for the past fourteen years. He has stood for higher qualifications of teachers and for other progressive features which have placed the schools among the best in the state.

Portsmouth, O. Mr. Wm. B. Altsman has been recently reelected president of the board of education. Mrs. Albert Marting who succeeds Conrad Roth, is the first woman to serve on the board.

—Mr. E. J. Woodburn has been appointed business manager for the board of education at Sacramento, Calif. The office is a newly created one, providing for the separation of the educational and business affairs of the school system. The new official who is to work under the superintendent, will undertake the details in connection with the business administration of the schools, leaving the superintendent free to supervise the educational aspects.

—Wilmington, O. Mr. Robert C. Lawhead, president of the board of education at Wilmington, has retired after a service of eighteen years. Mr. Lawhead was a remarkably efficient man on the board.

—Mr. J. B. Pipkin has resigned from the school board of Reidsville, N. C., after a service of fifteen years, most of which time was spent as chairman of the board. Mr. Scott Fillman has been elected as chairman to succeed Mr. Pipkin.



RULES.

—Duluth, Minn. The school board has adopted the following rules to govern the use of schools for community purposes:

1. *Meeting places.* The use by the community of any room or rooms in any building after school hours or in the evening must be arranged by application made through the school principal to the recreation department. Printed forms are provided for this purpose.

A. *Regular Meetings.* Organizations which hold meetings which are held regularly such as mothers' clubs, community clubs, etc., will file an application stating the night of the month which they want regularly kept for them.

2. *Dances.* All dances held in school buildings must be under the direct supervision of the Recreation Department. The Department will indicate the hours for the dance and the admission fee to be charged. All such fees must be turned into the Recreation Department which will pay all bills.

3. *Parent Teachers' Finances.* Each parent teachers' association may decide its own matters pertaining to membership fees, charges for refreshments, etc., for regular meetings.

4. *Use of Buildings by Individuals.* Individuals cannot give entertainments for their own benefit in the school buildings nor under the auspices of any organization.

5. *Members of the Parent Teachers' Associations* are at liberty to advertise the fact that any community organization may use the school buildings for any community purpose provided such purpose is approved by the School Board through the Recreation Department. There will be no charge for such meetings. The expense will be met by the Recreation Department and at any such meetings one representative of the school force and the janitor or janitors may be required to be present.

6. Activities such as *Gym Classes, Scout Troops*, etc., may be required to have a certain number enrolled before class is organized and a regular attendance must be maintained. In all such activities the building will not be opened until the director or supervisor is present.

ADMINISTRATION NOTES.

—Waukesha, Wis. The public schools have recently begun a drive for better attendance during the present school year. Teachers, pupils and parents have been impressed with the importance of regular attendance through the schools, parent-teacher meetings and the press.

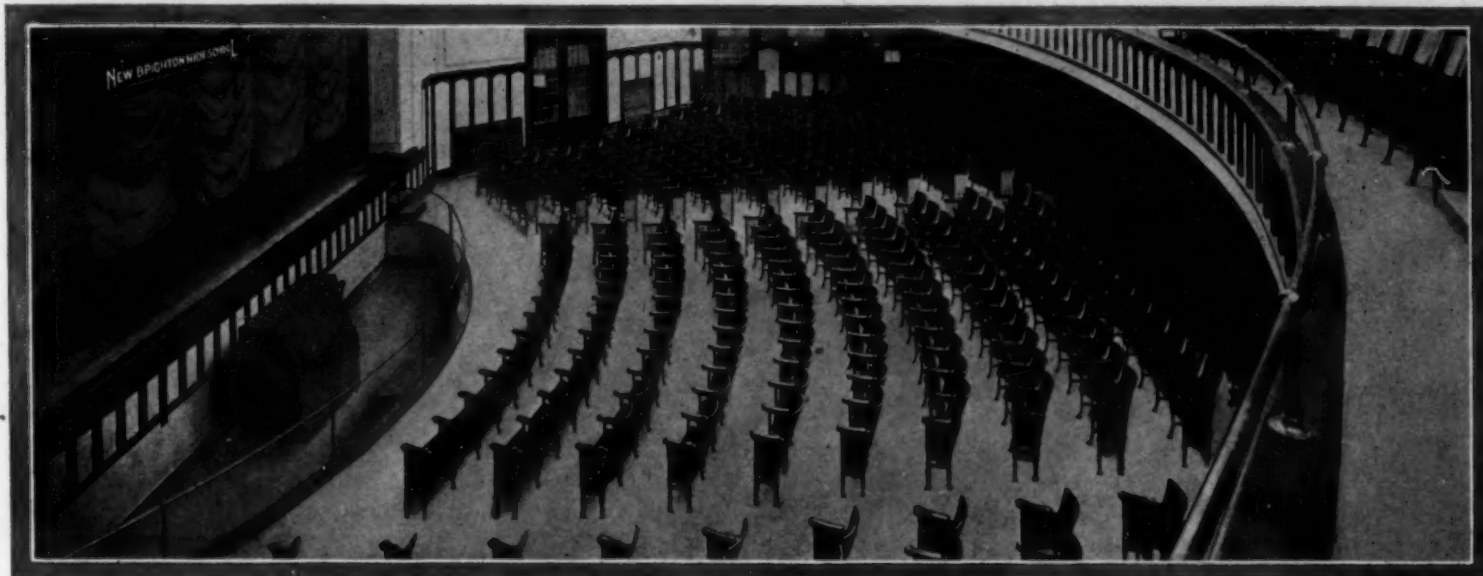
As a result of the campaign, every grade in the city is working for an attendance record of one hundred per cent. The attendance report is turned in at the office at the end of each week and is published in the local paper each Saturday. The pupils are eager to maintain the record for their room and cannot be induced to spoil a record except for unavoidable absence. For the first three months of school, the attendance record for the city was above 96 per cent and whole buildings reported average weekly attendance records of 99 per cent.

The campaign was put on under the direction of Supt. G. O. Banting and was carried out with the aid and cooperation of the teachers, principals and pupils.

—Racine, Wis. Two years ago the six-three-three plan was adopted by the board of education. In line with this policy, preparations were made to erect three junior high schools. The Franklin Junior High School was accordingly completed and occupied on September first of this year, with the McKinley School following in November. The Washington School will be completed in the spring. The total cost of the three buildings, exclusive of sites and equipment, is \$1,190,000.

—Munising, Mich. The schools of Munising Township now operate three busses in the transportation of children to Shingleton and Munising. This plan has been effective in the abandonment of the smaller rural schools and the concentration of students in the larger centers. The remaining rural schools are now schools of five grades only.

(Continued on Page 79)



Auditorium of New Brighton, Pa., High School, W. G. Eckles, Architect, New Castle, Pa., representing Mr. Eckles' 8th use of Marbleloid Flooring.

School Floors

Marbleloid *permanent* flooring is being widely adopted for school buildings because it embodies every requirement of a satisfactory floor, destined to meet hard usage.

Consider its remarkable properties: Fire-proof, waterproof, sanitary, easily cleaned, deadens sound, no upkeep, easy to the feet, attractive colors, does not crack, chip or dust, can be applied over wood or concrete, and possesses great strength and wearability.

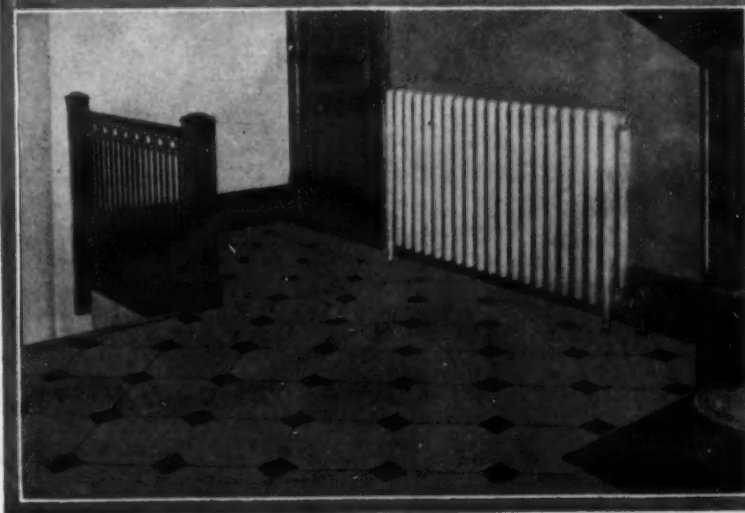
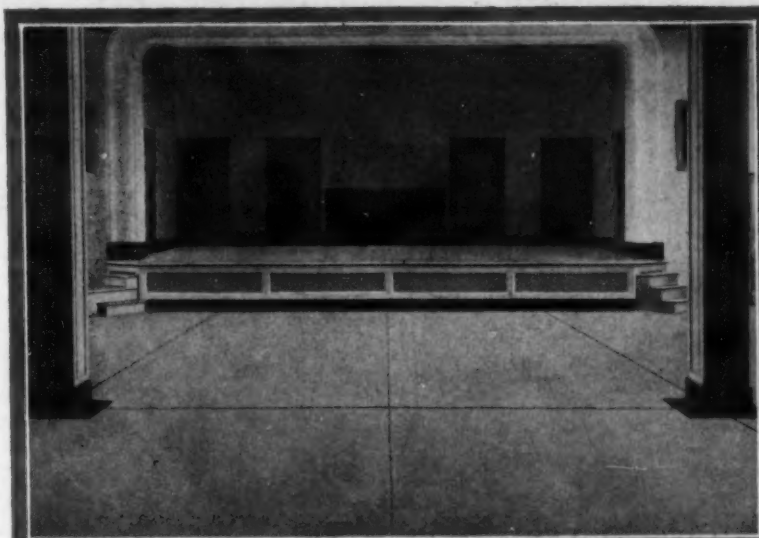


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Is not this the floor you want for your new school building; or to modernize your old building?

Architects: See Sweet's Catalog.

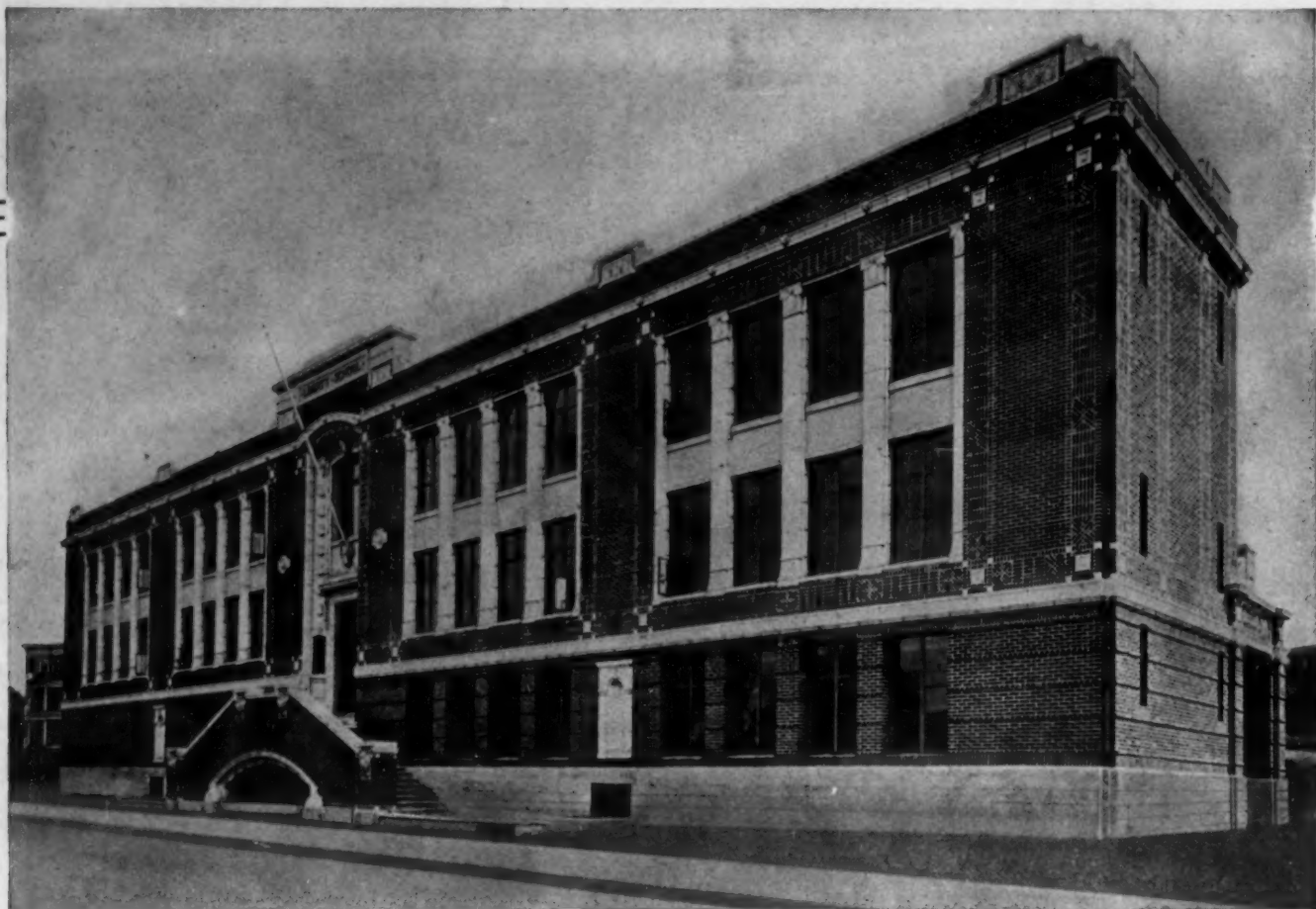
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School architects, too, find Terra Cotta a most satisfactory material with which to work. For in no other material can the artistic designs, which are so effective in school architecture, be achieved at such moderate cost. No other facing material affords the architect such varied scope in form and color.

The Liberty School affords a splendid example of the natural harmony between brick and Terra Cotta trim. Entrance, quoins, mullions, coping,—in short all the trim and ornament—are of unglazed and polychrome Terra Cotta. It is the Terra Cotta that expresses the structural lines—gives definition and richness to the whole building.

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Colorado Springs, Colorado
State Normal School . . . Gunnison, Colorado
St. Xavier College . . . Cincinnati, Ohio
East Side High School . . . Cincinnati, Ohio
Omaha High School . . . Omaha, Nebraska
Washington School . . . Hammond, Indiana
Washington University . . . St. Louis, Mo.

(Continued from Page 76)

—Ironwood, Mich. A department of tests and measurements has been established to make possible a systematic study of the progress of pupils and to determine in a measure the efficiency of teaching. Miss Grace Peebles has charge of the work.

The supervision plan has been reorganized to provide an elementary supervisor for the first six grades and a principal for the junior high school, who also acts as a supervisor. The present enrollment of the schools is 3,850 and the city is raising this year about \$390,000 for school purposes.

—West Plains, Mo. The enrollment in the schools has increased twelve and one-half per cent this year, due to a policy of the superintendent in giving increased attention to the utility aim of education.

The citizens of West Plains realizing the responsibility they have for the surrounding farming community have given every encouragement to the rural school graduates to attend the local high school. This has resulted in 41 per cent of the high school students attending from the surrounding communities. Mr. J. W. Pierce is superintendent of the city schools.

—Chadron, Neb. The enrollment of the city schools for the last four years has increased one hundred per cent.

—Hamilton, O. The pupils in the schools have been classified on the basis of intelligence so that various sections and grades are able to do about the same class of work. In connection with Teachers College of Miami University, there has been established a school for feeble-minded. This school is used as a practice school for the training of teachers in this work.

—St. Charles, Mo. One of the helpful things undertaken in St. Charles this year is the extension-center class for teachers. Dr. A. G. Capps, associate professor of school administration of the University of Missouri, is in charge of a course in the administration of educational tests and measurements. A class of thirty has taken the work and practically all the teachers will receive university credit for the work.

Under Dr. Capps' direction, the schools have been studied with the aid of the Terman and national intelligence tests, the Ayres spelling scale, the Ayres handwriting scale and the Cour-

tis, Gray and Monroe tests. Through these tests the supervisory department has been able to uncover some of the defects of the classification of pupils and to redirect some of the classroom instruction.

—Harrisburg, Pa. Of 11,032 pupils enrolled in the schools below the senior high schools, 8,535 have banking accounts under the school banking system. A total of 4,920 or 45 per cent of the enrollment, made new deposits on the first banking day in November.

—Bismarck, N. D. The schools of the state have experienced a good deal of loss of time due to the number of legal holidays. The Bismarck schools have been successful in making up this lost time through the elimination of term-end examinations both at the mid-year and the year end.

The examinations which have usually occupied a week each are eliminated and the pupils are promoted entirely on the basis of the report card marks which include the results of written or oral tests during the term. The mark on the report card gives the student an idea of how he stands to date and is a warning or an encouragement to him as the case may be. The plan saves two weeks' time and pleases both teachers and parents.

—Huron, S. D. The attendance department under the direction of the superintendent, with the efficient service of the attendance officer, has secured a high percentage of attendance. The enrollment has been checked against the census roll and every person on the census list not in school, has been carefully looked up and accounted for. The attendance officer is on daily duty in the office of the superintendent and information regarding absentees is furnished daily by all of the principals.

—Shawnee, Okla. At the opening of the schools in September, Supt. H. G. Faust placed in the hands of each parent a card prepared and printed especially for the occasion. The card which is entitled "How Parents May Help the Schools" outlines a few things which the parent can do to improve the work of the pupils and increase the teacher's interest in the children's progress. The card contains the following:

How Parents May Help the Schools.

1. Visit the schools often.
2. See that your child is regular and prompt in attendance.
3. Discourage parties and social functions for the children during school time (Monday to Thursday night inclusive).
4. If your children are in either the Junior or Senior High School, they should do from one to three hours of home study each day.
5. Examine carefully your child's report card.
6. Consult the principal or teacher if reports show work not up to the standard.
7. Investigate before criticising the work of the schools.
8. Cooperate with the teachers for the welfare of your child.
9. You will find the teachers' interest in your child's progress equal to your own.

We wish for your child the blessing of a successful school career this year. *H. G. Faust, Superintendent.*

—The Fayetteville, N. C., "Observer" and the local school authorities have entered into an arrangement whereby a silver cup is to be given to the classroom producing the largest number of prize themes this year.

The contest is open to all white pupils of the elementary grades. The judges are the teachers, who regularly read one theme from each room each week. The best paper is selected for publication on Friday or Saturday, on which date also the subject for the next week is announced. The winning theme, the names of the contestants and a list of the judges is published each week. The winning theme is not announced until after it appears in the "Observer".

—Albion, Mich. The supervisory department is making considerable use of intelligence tests this year. All children from the third to the eighth grades have been tested with the National Test and those in the upper quartile in their grade are advanced one-half year on the basis of the tests.

The ninth to the twelfth grades have been tested by means of the Otis and the Army Alpha Tests. In making classifications, freshmen and sophomore pupils were placed in groups according to ability. This plan has been in operation for two years and the results have proven satisfactory. A similar grouping is being carried out

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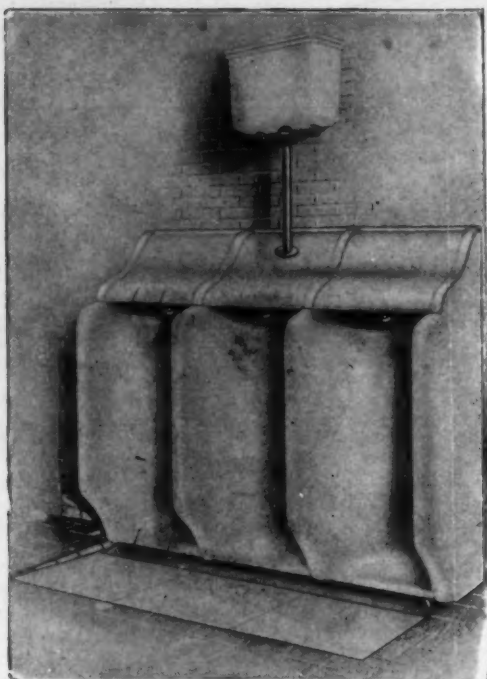
"VENTILATION INSURES SANITATION"



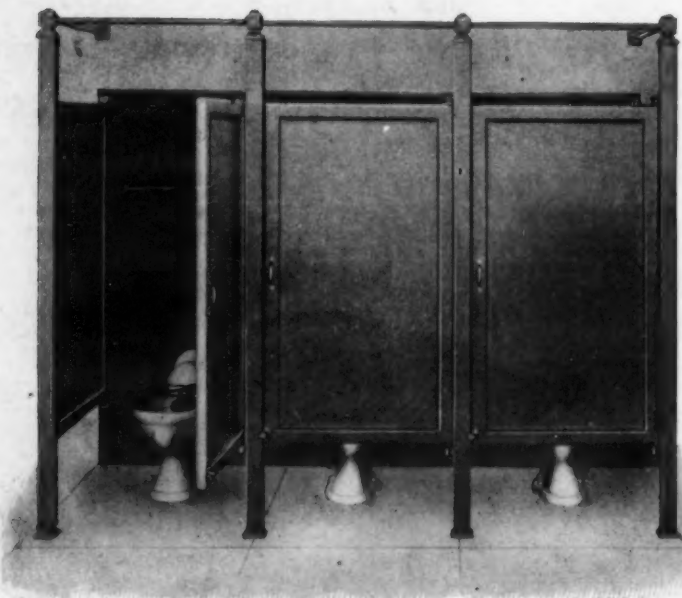
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"EBCO" SANITARY VITREOUS ENAMELED DRINKING FOUNTAINS

are absolutely sanitary in design. It is a physical impossibility for the face, lips or tongue to come in contact with any metal or substance other than the running water.



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"EBCO" SANITARY STEEL PARTITIONS

"EBCO" VENTILATED TOILET FIXTURES

are *all quality*, the result of more than fifty years of leadership in the development of plumbing ware.

"EbcO" Ventilated Toilet Fixtures are not only perfectly ventilated, but are durably constructed and are most economical and efficient in use. In design they are flawless. No metal exposed to corrode. No cracks or crevices to be kept clean. They are also exceptionally massive, of well-defined proportions and are exceedingly neat in appearance. All exposed surfaces of "EbcO" Ventilated Toilet Fixtures are heavily vitreous enameled, thus presenting at all times a sanitary, hard, smooth, glassy and non-absorbent surface. Spreaders supplied from an automatic flushing tank, distribute the water evenly over the fixture so that all parts are thoroughly flushed—a positive assurance of absolute cleanliness and sanitation.

Built for economical service and lasting satisfaction, "EbcO" Ventilated Toilet Fixtures are without question the most admirably adapted to the strenuous wear and tear to which all school property is constantly subjected.

Thousands of installations of every conceivable size and arrangement, in schools throughout the country, testify to their invariable excellence. You can purchase "EbcO" Ventilated Toilet Fixtures with every assurance of getting the utmost in value and permanence.

Descriptive literature and prices on request.

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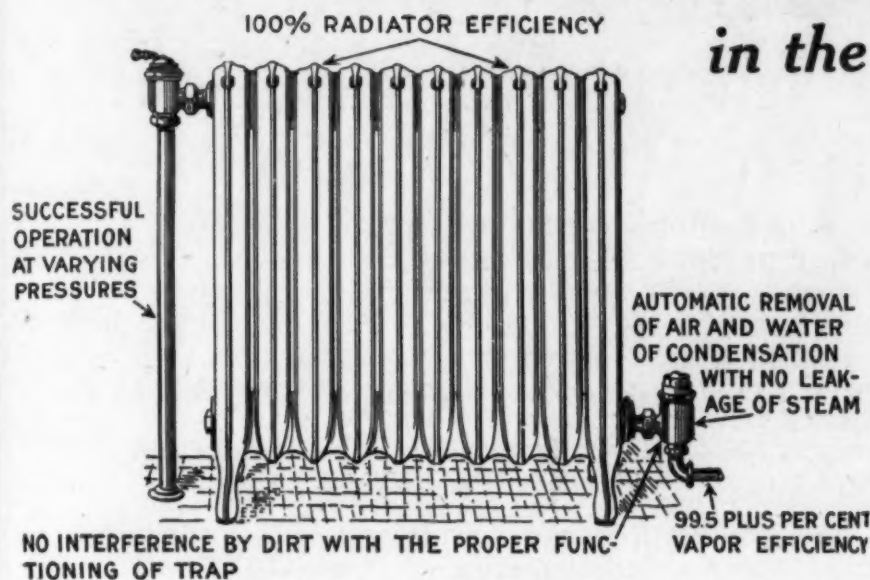
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SYSTEMS OF STEAM HEATING

- FIRST,** a heating system installation **DESIGNED**—not merely connected together—with reference to the particular requirements of the building in question,
- SECOND,** equipment that can be depended upon to give **PERMANENTLY** satisfactory operation with least attendance, operating and maintenance costs,
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The satisfaction obtained through the use of Webster Heating Equipment is evidenced by the 17,000 successful Webster installations, among which are included hundreds of educational buildings of every size and type; the experience of the Webster organization is indicated by its 33 years of consistently maintained leadership in the development of steam heating engineering; and the valuable cooperation offered through 31 conveniently located branch offices and service stations also helps to assure permanently maintained efficiency and thorough satisfaction to owners and operators of Webster Heating Systems.

Write for Bulletins.

156

Warren Webster & Company
Camden, New Jersey
31 Branch Offices

(Concluded from Page 79)

in the seventh and eighth grades. Those who develop superior ability are allowed to carry an additional subject in the next grade.

—Ambridge, Pa. Under a new plan, all beginners who will reach the age of 6 years before June first, were received in September, making partial kindergartens of all first grades. An entire year is thus saved to the children, making it possible for them to enter the high school a year younger than under the plan of admittance twice a year.

Examinations have been eliminated in the elementary schools and modified in the high school, making promotions dependent almost wholly upon daily classwork.

Mass teaching in the elementary schools has been broken up in large measure through the operation of a daily schedule upon the two-group plan. The new arrangement allows one-half of the school time for study which practically eliminates excessive homework.

Supervising principals have been assigned over each building, making possible more efficient work and real cooperation.

—Freeland, Pa. A continuation school was opened this year, with an enrollment of seventy students. An extension course is being conducted this year under the direction of Miss Steele of the Bloomsburg Normal School. The course is attended by thirty teachers and has proven very helpful.

—Staples, Minn. Two opportunity rooms have been opened.

—Carthage, N. Y. Among the special features of the new school year are the following: A system of grading by promotion in the first grade, making it possible for primary pupils to complete the first year's work in a half year, a year, a year and a half, or two years, according to age and ability. An ungraded room has been in operation since 1907, and departmental work for pupils promoted by subject from 5-A grade through the high school is practiced.

—Concordia, Kans. An ungraded room has been opened. Standard tests in reading, spelling, arithmetic, language and writing have been conducted for the first time this year. The teachers have taken an interest in the work.

—Philadelphia, Pa. To insure a more mature and thorough examination of books for adoption,

the board has appointed several committees of principals, supervisors and superintendents—one committee for each important subject of elementary study. These committees will carefully examine textbooks whenever they appear during the year, so that the work may be distributed and the examination made thorough. Publishers are requested to submit their offerings as soon as they are ready for the market.

—A series of conferences have been planned for the year at Philadelphia, which are to embrace all departments of instruction. The purpose of the conferences is to give the teachers professional help and inspiration. The several associations of teachers have also prepared programs of professional meetings.

A unique feature of the departmental meetings will be the series of conferences of elementary principals with the superintendent of schools. These will be informal, free and open discussions, where the principals will be given an opportunity for a free expression of ideas. The program of demonstration lessons for the improvement of teachers in service, which was so successful last year, has been continued during the present year.

—A Division of Research and Publicity has been proposed at Philadelphia. The purpose of the division is to make possible frequent scientific studies of the results of the work in the schools, and the collection and collation of facts and data in order that the public may be informed in regard to the conditions and needs of the schools.

—"Kosher" cooking utensils have been provided in the cooking department of the parent-teachers' association in one of the foreign school districts of Duluth, Minnesota, in an effort to bring together the Jewish and Gentile housewives of the neighborhood. Until the "kosher" utensils which are kept separate from the others were provided, orthodox Jewish women would not attend the cooking classes.

—Lincoln, Neb. Under the provisions of a state law, the city has established a special school for children with defective hearing. Nine children are in attendance.

—The schools of Hutchinson, Kans., have been reorganized on the six-three-three plan with separate housing for each unit of the school sys-

tem. The reorganization was brought about under the direction of Supt. J. O. Hall. The enrollment in each of the junior high schools is more than 500 students while that in the senior high school has reached 550, making a total of more than 1,600 in the three schools.

Kindergartens have been established in seven of the nine elementary schools of Hutchinson, Kans., this year. In another year it is expected that each school will be similarly equipped.

—The special committee on teachers has presented to the board of education of New Britain, Conn., a program of studies for junior high schools, providing for required and elective courses. In connection with the program, the committee also prepared a revised schedule of classes as follows:

Morning.

Opening of school, 8:15 to 8:30.
Passing to classes, 8:30 to 8:36.
First period, 8:36 to 9:51.
Passing to classes, 9:51 to 9:57.
Second period, 9:57 to 11:12.
Passing to classes, 11:12 to 11:18.
Special period, 11:18 to 11:40.
Noon dismissal, 11:40 to 1:05.

Afternoon.

Third period, 1:05 to 2:20.
Passing to classes, 2:20 to 2:26.
Fourth period, 2:26 to 3:41.
Passing to classes, 3:41 to 3:47.
Special period, 3:47 to 4:15.
Dismissal, 4:15.

The new schedule is believed to offer advantages over the old plan. It gives longer periods for continuous application in study and recitation, it provides for less frequent changes in classes, keeping both pupils and teachers busy, and it requires a smaller number of teachers, with less expense for operation.

—Seattle, Wash. The board has intimated that it will adhere closely to its rule providing that in case of resignation "after August first," and prior to the payment of the twelfth installment, only one-half of the twelfth month's salary shall be due and payable. A teacher who had resigned previous to August first, through error had been paid the full amount.



Teachers not required to do Extra Work to Teach Thrift The Automatic Receiving Teller

"100% THRIFT SYSTEM"

PERMITS THE PUPIL TO DEPOSIT EVERY DAY.
DOES NOT DISRUPT SCHOOL PROGRAM.
TEACHERS HANDLE NO FUNDS.
MAKE NO REPORTS.
KEEP NO RECORDS.
TEACHES THE PUPIL ACTUAL BANKING PRACTICES AND FORMS.
HUNDREDS OF SCHOOLS USE THIS SYSTEM BECAUSE IT PRACTICALLY APPLIES THE THEORETICAL TEACHING OF THRIFT.
THE SCHOOL IS COMPLETELY RELIEVED OF ALL DETAIL AND EVERY CARE BECAUSE OF THE FULLY AUTOMATIC OPERATION OF THE AUTOMATIC RECEIVING TELLER.

Write us for further information.

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AN ADJUSTMENT ROOM FOR PUPILS.

Lewis F. Ferrish, District Superintendent,
Venice, California.

During the year 1920-1921 we gave the Courtis Standardized Research Test in arithmetic, silent reading, spelling and writing, and discovered that many of our pupils were out of adjustment in the classes in which they were working. That, is, they were not properly graded.

Soon after the fall opening of school last year, and after much preparation and study given to the work during the summer as a result of the test given, we opened an adjustment room at the Martha Washington school, the purpose of which is to conserve the real abilities of the pupils who are not properly graded, and encourage them to reach a higher educational level. It also serves to advance the child who, although in his proper grade, fixed by his chronological age, has a mental capacity beyond this age.

The plan is not a teaching plan but a learning plan, and they do learn. The work is all individual.

After we found we had these children it became necessary to devise a plan of segregation and a plan of education following segregation which would recognize this distinction as far as it is well founded.

We have two rooms now organized—primary adjustment room—with children of the first, second, and third grades; the other—upper adjustment room—fourth, fifth, and sixth grades.

We do not regard the school district lines for adjustment rooms; the two rooms function for our whole school system. Children are sent from other school districts when we have a vacancy in the level of work needed by the child. As a rule the child is first located or found by the regular classroom teacher after we

have given the group tests in arithmetic and silent reading, then the Binet test is given by the adjustment room teacher to be sure of the mental age of the child. After that other tests are given by which we are able to find the child's actual level of ability in Reading—Number—and Language. This is done individually.

His strong and weak points having been determined, he is given a program of work to fit his own peculiar needs. This consists of practice exercises, to be completed with 100 per cent accuracy. He knows at each step the immediate application of his work. He is thus enabled to work definitely and clearly. He is checked by a test on each group of exercises. He keeps his own score on a progress sheet and knows his daily average.

He is not held back by any other pupil. His own abilities and efforts are stimulated by the game spirit which comes from competing against his own records.

The need for discipline is almost, if not entirely, lacking in Adjustment Rooms. Numerous boys and girls who have previously given trouble seem to experience a complete change of disposition.

The report card at the end of the term will show the course and progress of daily work, not the vague personal opinion of a teacher, nor the result of a single examination.

The retarded child takes up the time from other members of his class and is a drain on the time and energy of his teacher. But if he once learns how to study—to get the feeling of realizing a definite goal, of successful accomplishment, or thinking of ways and means—it is something which can never be taken away from him, and will be worth any price. The results can not be measured in dollars and cents.

Some Results Already Attained.

1. Two children from A2 in two weeks made B3.
2. Two children from A3 in two weeks made B4.
3. Two children from B4 who were failures in their work at the end of twelve days' work in the Adjustment Room are now leading their classes.
4. One child from B4 spent 21 days in the

Adjustment Room, and is now carrying the B4 work.

5. One child from B4 in 14 days made B5.

6. One child retarded in B6 in three weeks replaced in grade and is carrying work nicely.

7. One child from A6 in six weeks made B7.

FOR BUSY SUPERINTENDENTS.

A 72-page booklet compiled by Supt. Claude Hardy, Fairport, N. Y., and entitled "A Study of the Efficiency of the Fairport Schools" has recently been issued. The booklet consists of eighteen chapters and is divided into two parts. A survey of the teacher situation is treated in the first six chapters and some attention has been given to a summary of the training, experience and present salary schedule of the teachers.

Supt. Hardy presents facts on the number and per cent of teachers leaving the system each year and the reason, together with a description of what the teachers have done to improve themselves. A special feature is a system for classifying teachers, which Mr. Hardy has evolved. In applying the scale, it is found that practically all of the teachers are rated satisfactory, more than half of them scoring above the average for teachers generally.

Part two of the study consists of eleven chapters and is a detailed analysis of the product of the Fairport schools. It contains information on the progress of pupils, the school census, attendance, distribution of enrollment by ages and grades, cause and percentage of failures, ability and capacity of pupils as revealed by tests; per cent of pupils completing elementary course to enter high school and per cent of high school students graduating from college.

The last four chapters of part two are a summary of opinions concerning the schools, as expressed by two groups of people—the patrons, the nongraduates of the high school. The study is one of the first of its kind in New York State for a school system the size of Fairport.

The statement is made by the Eye Sight Conservation Council of America that out of 100,000 pupils in the New York public schools who fail to be promoted each year, 50,000 have defective eyesight, and 25,000 are suffering the humiliation of being "left-back" simply because they are desperately in need of glasses.

(Continued on Page 85)

STROHBER DIMINUTIVE

THE PIANO FOR THE ADVANCEMENT OF MUSIC IN THE SCHOOL ROOM

ANY TEACHER WHO REALLY
WANTS ONE OF THESE NEW
LITTLE PIANOS FOR HER
SCHOOL ROOM CAN HAVE IT

*WE HAVE A PLAN
WRITE US*



WE WANT TO
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I want to know all about your plan to help me get a Strohber Diminutive
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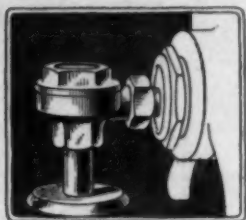
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DUNHAM RADIATOR TRAP



SILENCE in the school room

How can pupils concentrate on their studies—how can teachers hold the students' attention—when radiators are banging! hissing! and leaking water over the floor?

Dunhamized heating systems are as quiet as an empty school room. Each radiator is equipped with a Dunham Radiator Trap, piped to the boiler room. No air or water can escape into the school room. The causes of noise in pipes and radiators are eliminated; steam circulates freely, keeping radiators hot all over.

In hot air systems, the steam coils do their work at highest efficiency when equipped with Dunham Valves and Traps.

Dunham Service co-operates closely with the School Board, Architect and Builder. From Maine to California, we have the confidence of all who want the best possible heating systems used. The comfort and health of pupils demands the best.

DUNHAM SPECIALTIES

Packless Radiator Valves
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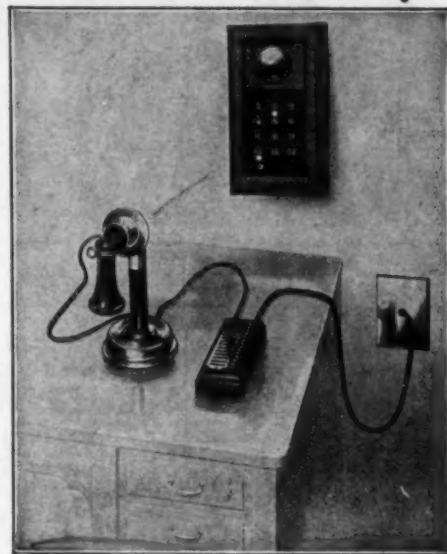
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Telephone Systems for School-houses, Colleges, etc., have been our specialty for twenty-five years.



No. 75

Correspondence invited from school boards and superintendents.

S. H. COUCH CO., INC.
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170 Purchase Street, Boston, Mass.
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Ridge Street Public School
Newark, N. J.
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Standard for Forty-five Years

Folding and Rolling PARTITIONS

"One Room into Many—Many into One"

For the easy and instant subdivision of large school rooms, Wilson Partitions are standard. Their simplicity, ease of operation, durability, economy and harmonious beauty have been proved in more than 38,000 schools, churches and other public institutions.

Prices have been reduced as much as possible.

Hygienic Wardrobes

Rolling or Disappearing Door Fronts—with or without teachers' closets and black-board surfaces. Eliminate cloak room, save space—sanitary, convenient, and under teacher's constant supervision.

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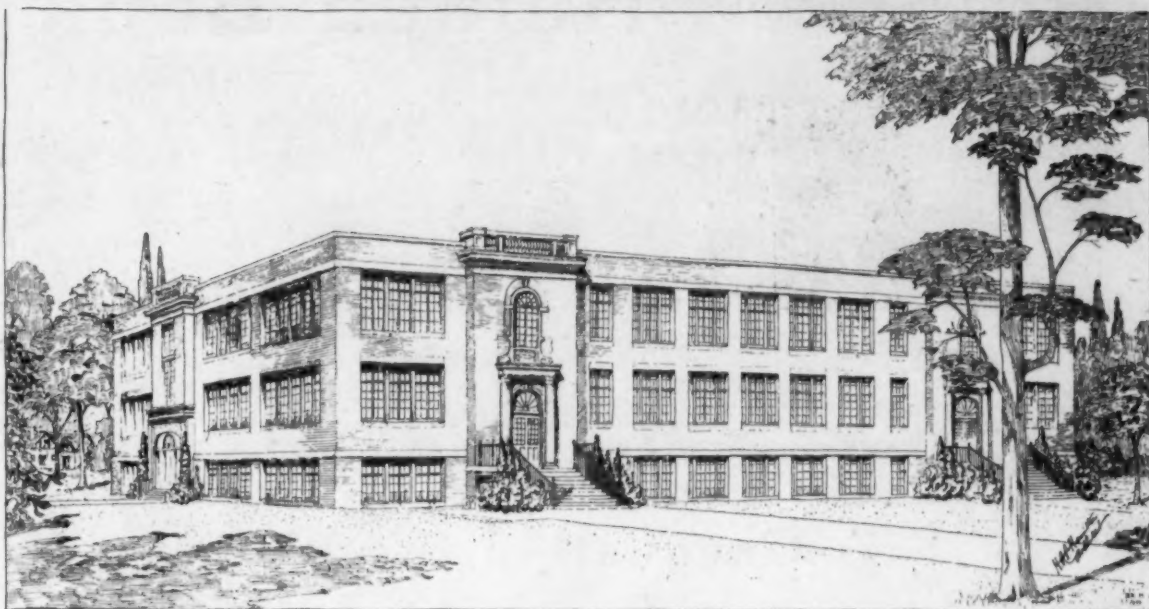
DURIRON ACID PROOF DRAIN PIPE

Duriron is a cast metal that resists all acids perfectly.

The installation of Duriron Drain Lines in school laboratories is paid up insurance against repairs and damage to building for all time.

Although its first cost is somewhat greater than other material, its superiority is so unquestioned that it is being specified everywhere for school and college laboratory drain lines.

Bulletin No. 126-A —
Duriron Drain Pipe —
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H. R. P. Hamilton, Architect

BEDFORD, OHIO, HIGH SCHOOL.

R. C. Osborn, Plumbing Contractor

The case of the Bedford High School is typical of recent school construction. When the specifications were written, Duriron was not specified for the laboratory drain lines. Later, when the superiority of Duriron was appreciated, the specifications were promptly changed, and now, no matter how long this school stands, there will be no upkeep expense for laboratory drain lines.

The Duriron Company, Dayton Ohio

(Continued from Page 82)

—The Iowa teachers have gone on record favoring compulsory education to the age of eighteen.

—State Superintendent Baker of Missouri has refused to interfere with the dress tendencies of the day as affecting teachers and pupils. He holds that common sense as fostered in schools must solve the problem.

—The Newark, N. J., school board has deducted salary payments from teachers for belated return to the schools. "A tendency among all classes of people is to disregard laws and rules with the hope of 'getting away with it' is one of the greatest evils of the times," said Superintendent Corson.

—The records show that Connecticut has added 1,000 teachers to her teaching force this year.

—Wendell A. Mowry quit the superintendency of Woonsocket, R. I., to accept a similar position at Natick, Mass., at a higher salary. It now develops that the city council prevented the Woonsocket school board from paying its school superintendent an adequate compensation.

—The New York Department of Education has requested loyalty pledges from all of the teachers of the state to be filed by January 1, 1922.

—State Superintendent George M. Ford of West Virginia has urged all year pay for teachers.

—"Better teaching," said Principal George A. Eaton of the Salt Lake City high schools, recently, "is one of the vital needs of all the schools today."

—The teachers of Iowa have appointed a committee to draft a code of ethics that shall indicate the attitude of the public toward the teacher and the relation of the teacher to the community. The statement is made that "Iowa's teachers are tired of having their actions outside of school hours regulated, and demand a code of ethics."

—The reason why Massachusetts dropped from first to ninth place in the educational ranks of states is in part due, says Dr. Payson Smith, State Commissioner of Education, to the enrollment of so many pupils in private schools. The remedy, he holds, is fewer social activities in the higher grades and more nights at home for the pupils, necessitating fewer entrants to private schools to make up for lost studies.

—"Inadequacy of revenues, failure to understand the economic value of trained superin-

tendents and supervisor, and a lack of fitness and preparation of the teaching forces cause the greatest leakage and waste in education," was stated by State Superintendent Francis G. Blair of Illinois recently. "It is still a mere gamble, a toss of the dice, as to whether the children who come down to education shall find behind the desk a man or woman sufficiently endowed by nature and qualified by study and instruction to give children an adequate return for the time and energy spent in the schoolroom."

—The evening school at Wheeling, W. Va., in addition to the classes in the academic, commercial, home economics and manual training, has quite a large class in Americanization and a class of fifty apprentices in part-time work supplementing their work in the trades.

—State Superintendent A. O. Thomas of Maine is working out a plan whereby he proposes to end all illiteracy in that state in five years.

—The slow progress pupils of the New York City schools are computed at 45.8 per cent; those making normal progress 42 per cent, and those making rapid progress 12.1 per cent. These facts are disclosed by the bureau of reference and research of the department of education.

—Student participation in school government has been introduced in the high school at University Place, Nebraska. The teachers have been entirely withdrawn from halls and corridors. The plan under the guidance of Supt. A. H. Dixon is said to be working out in a most satisfactory manner.

PERSONAL NEWS.

—Mr. Owen R. Easley, formerly principal of the high school at Martinsville, Va., has resigned to organize the firm of Cannaday & Easley, district agents of the Mutual Benefit Life Insurance Co.

—Supt. Charles C. Hughes of Sacramento, Calif., has been reelected for the next four years. The reappointment carries with it an annual salary of \$6,000.

—Richmond, Va. Supt. Albert H. Hill has been elected president of the State Superintendents' Conference which was held in Richmond during Thanksgiving week. Mr. Hill has been named a delegate to the N. E. A. meeting to be held in Boston.

—Supt. Daniel Keating of Onelda, N. Y., has retired after a service of 44 years. Mr. Harry

W. Longworthy of Spring Valley, has been elected to succeed Mr. Keating.

—Supt. J. W. Borden of Ashland, Ky., has been reelected for the present year, at a salary of \$4,500.

—W. A. Mowry of Woonsocket, R. I., has accepted the superintendency at Natick, Mass., at a salary of \$3,750.

—Mr. Charles V. Carroll, sub-master of the high school at Woonsocket, R. I., has been elected superintendent of schools, to succeed Mr. Mowry.

—Mr. Edward S. McFee, principal of the ninth grade at Woonsocket, R. I., recently removed his residence to San Diego, Calif. Mr. McFee had been principal of the same school for the past 33 years. He was presented with a gold duplicate of the key to the school where he taught.

—Mr. P. M. Atwood, of Monticello, Minn., has been elected superintendent of schools at Staples.

—Mr. A. R. Curry, superintendent of schools at Kennett, Mo., from 1917 to 1921, has accepted the principalship of the Hyde School, Kansas City.

—Mr. Egbert Jennings, of King City, Mo., has been elected superintendent of schools at Kennett.

—Supt. Henry Pease of Titusville, Pa., has announced his resignation, to take effect on May first. Mr. Pease is serving his 25th year in Titusville.

—Supt. D. E. Wiedman has entered upon his second year at Bellingham, Wash.

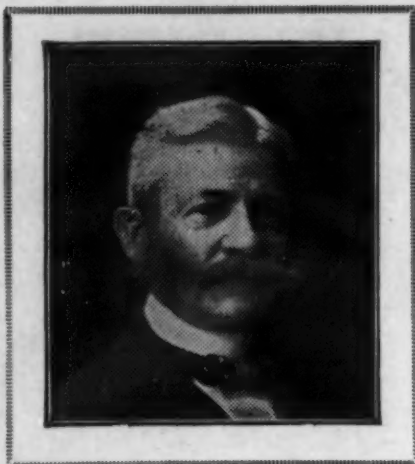
—Supt. W. H. Morton of Fairbury, Neb., has been elected president of the Nebraska Teachers' Association.

—Mr. George F. Webster has been elected as supervising principal of the schools at Rye, N. Y. He succeeds the late F. T. Shutts.

—Mr. S. B. Underwood, formerly head of the schools of Pitt County, N. C., has assumed the superintendency at Raleigh. The appointment carries with it the work of secretary of the board, which puts the superintendent in entire control of the business and professional affairs of the schools.

—Mr. L. G. Andrews is superintendent of schools at Novasota, Tex.

—Dr. Ernest Fox Nichols, who was elected president of the Massachusetts Institute of Technology in June last, has resigned the office



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SPRINGFIELD, MASSACHUSETTS

because of ill health. Dr. Nichols was stricken with illness soon after the inauguration ceremonies and was advised by his physician to relinquish the position. A leave of absence until January, 1922, has been granted, when the next meeting of the corporation will be held.

—Supt. M. A. Sturtevant, who has been at the head of the schools of Rutland District, at Brandon, Vt., for the past three years, has resigned to accept the superintendency at Barre, Maynard and Petersham, Mass. Mr. W. L. Coggins succeeds Mr. Sturtevant in the Rutland District.

—Mr. Wm. C. Knoelk has been elected superintendent of schools at South Milwaukee, Wis., succeeding F. W. Hein.

—Mr. E. C. Wade of Bluefield, W. Va., has taken charge of the schools at Florence, S. C., at a salary of \$6,000 per year.

—Mr. F. L. Smith of Manlius, N. Y., has been elected superintendent of schools at Lancaster.

—Supt. B. R. Showalter of Berlin, Conn., has been reelected for his fourth year. During Mr. Showalter's incumbency, there has been a growth of more than forty per cent in the school population. Considerable progress has been made in the direction of better educational standards, improved methods of instruction, and better trained and better paid teachers. The average salary for instructors has increased 110 per cent. The citizens have voted increased funds for the support of the schools during the next year.

Mr. Herbert S. Rausch has been elected supervising principal of schools at Girardville, Pa. Mr. Rausch has had fourteen years' teaching experience.

—Mr. D. S. Yape of Champion, Mich., has become superintendent of schools at Republic. Mr. Yape is succeeded by Mr. E. W. Carlson.

—Supt. W. K. Dwyer of Anaconda, Mont., has been appointed a member of the Foreign Relations Committee of the National Education Association. Mr. Dwyer is also a member of the National Council of Education of the association.

—Mr. Ernest W. Fellows has been elected superintendent of schools at Gloucester, Mass. Mr. Fellows has been located for the past few years at Framingham.

—Mr. James Noble Rule, National Director of the Junior American Red Cross for the past two years has resigned to take up important work in

the Department of Public Instruction of the state of Pennsylvania. Mr. Rule came to the Red Cross national organization during the war period and in October, 1919, was appointed national director of the Junior organization.

—In the new work to which Mr. Rule has been called, he will act as director of science for the public schools of the Keystone state. He brings to the work valuable experience gained through his previous connection with the school system of Pittsburgh.

—Mr. Arthur W. Dunn, who has served as assistant director of the Junior Red Cross, has been appointed to succeed Mr. Rule.



DR. MARTIN G. BRUMBAUGH,
Washington, D. C.

Dr. Brumbaugh has recently become head of a national movement for physical education.

—Mr. L. J. Hanifan has been superintendent of Brown's Creek District, at Welch, W. Va., for the next year. In that time he has made many needed improvements in the buildings and has raised the standard of work throughout the district.

—Mr. B. E. Beavers, for many years a school commissioner at Charlestown, W. Va., died in September. Mr. Robert P. McGarry has been appointed to succeed Mr. Beavers.

—Supt. J. W. Wyant of Bryon, O., has been reelected for his seventh three-year term. The superintendent has a home for his family, which is located on the school grounds of one of the schools.

—Mr. A. C. Ramsay is serving his second year as assistant principal of the high school at Montclair, N. J. Mr. Ramsay was for four years superintendent of schools at Gouveneur, N. Y.

—Mr. W. E. Sheffer assumed the duties of superintendent of schools at Concordia, Kans., in September.

Mr. F. W. Johansen of Cherokee, Ia., has announced his resignation, to take effect January 21st.

—Supt. J. W. Gowans of Winfield, Kans., has been selected by the Commissioner of Education to assist in a state survey of schools of Arkansas. Mr. Gowans will have charge of city and village school statistics.

—Charles E. Chadsey, former superintendent of the Chicago schools, has sued Superintendent Mortenson, his successor, for \$5,000, and the Chicago school board for \$10,000 salary alleged to be due him. Chadsey, it will be remembered, was dropped from the Chicago superintendency before the time for which he was elected had expired.

—The attorney general of Ohio, in an opinion given to the school board of Cincinnati, points out that in the opinions of the attorney general for 1918, it is held that: "Where a child resides permanently in the home of her uncle, who has an actual residence in a school district, such child may attend the public schools of such district free of tuition, even though the parents of such child live in another state."

The board of education under the law, must admit without tuition charge, any child actually resident in the district who would otherwise be deprived of school privileges in the state.



The only piano in which I am actively interested is the Monogram. This is my latest improved piano and is the only piano for which the Miessner Piano Company assumes any responsibility.

The Monogram has many exclusive features of vital importance and my guarantee rests largely on those features.

To make sure of getting my latest improved piano, specify the Monogram and always bear in mind that the Monogram is the only piano sold by the Miessner Piano Company. Every genuine Monogram piano bears my personal monogram imprinted on the fall-board and cast into the full iron plate.

W. Otto Miessner



Miessner Piano Co.,

Gentlemen:

Please send me the new Monogram catalog, your special price to schools, and details of your 10-day Trial Offer.

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School..... Position.....

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W. Otto Miessner's Monogram Six Pianos in One!

In schools throughout America the Monogram is daily giving evidence of its special fitness for all school work in which music is a part.

The Monogram takes the place of half a dozen big, heavy stationary pianos. It begins the school day in the kindergarten, is easily moved from one class room to another, changes dull exercises to delightful recreation in the gym, lends inspiration to orchestra and glee club practice—it's the all-purpose school piano.

Its small size and light weight make it a piano of maximum utility in the school. Moreover, Mr. Miessner has built into the Monogram a remarkable tone, as rich and full as that of a small grand.

Only 3 feet, 7 inches high, 4 feet 6 inches wide, weighs only 375 pounds.

Get a full description of the improved Monogram features. The coupon will bring the Monogram catalog, special price to schools, and the booklet, "A Hundred Ways to Raise Money," written by Mr. Miessner. Mail the coupon now!

TO SCHOOL EXECUTIVES

When you attend the annual convention of Department of Superintendence in Chicago Feb. 24-Mar. 2 see the Monogram display and hear a demonstration of this remarkable piano. Commercial Exhibit in the Leiter Bldg., State and Congress.

The Miessner Piano Company
228 - 3rd St., Milwaukee, Wis.

Monogram

The "Baby Upright" Supreme



The Best Construction and Lighting Equipment

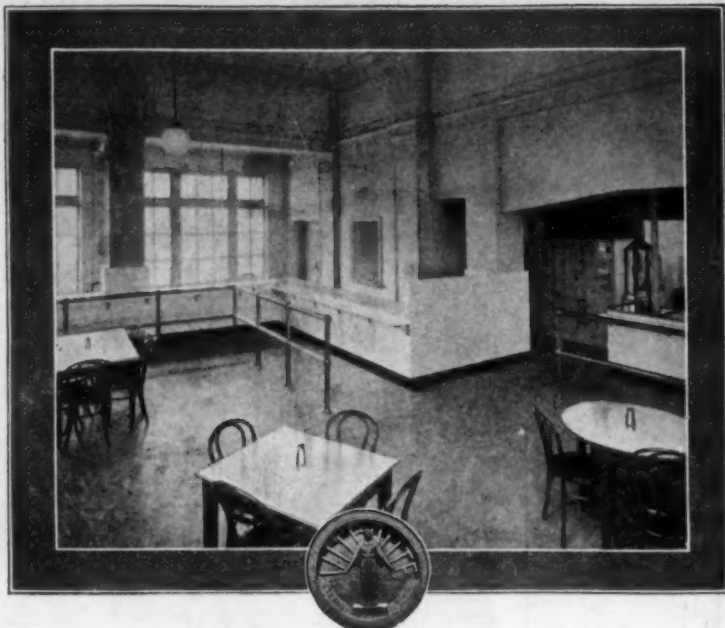
The modern and fully equipped high school building illustrated above was recently completed by the late Rt. Rev. Thomas Daniel Beaven, D.D., Roman Catholic Bishop of Springfield, Mass., and is the first unit of a group to be built at that location for educational purposes.

The building represents the very latest developments in school construction. It contains fourteen class rooms, a large assembly hall and the usual complement of cloak rooms, recreation rooms, offices, etc.

For natural lighting the uni-lateral system was adopted and splendid results obtained. But modern school requirements necessitate equally good artificial lighting. To approximate daylight conditions, nearly one hundred Denzars were used. Denzars were selected because they produce a soft clear white light, on both desks and blackboards, without glare, bright spots or distracting shadows. Each class room has four Denzars equipped with 150-watt nitrogen lamps which produce a uniform illumination throughout the room. They were installed by The Tuohey Company of Springfield. The plans and specifications were drawn by Jno. Wm. Donohue, A.I.A., also of Springfield.

If you wish to approximate daylight in your school building, send us the dimensions and physical description of any one room and we will suggest, without obligation, a trial installation.

BEARDSLEE CHANDELIER MFG. CO.
219 So. Jefferson St. : : : : Chicago, Illinois



Teaching Practical cleanliness -

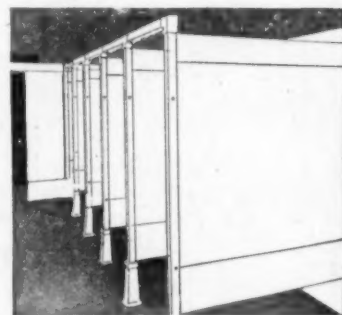
THE school that would slight the teaching of hygiene and sanitation would undoubtedly have a very low rating among educators. One of the most practical ways to teach cleanliness is to practice it.

Whether planning a new school, or remodeling the old, everyone charged with the responsibility of "building for health" should know all about Vitrolite sanitary partitions and ever-clean lunch room equipment. Vitrolite's sparkling, spotless white surface is just as clean as it looks—no pores, cracks or crevices in its fire-finished surface—a stroke of a damp cloth removes every dust particle.

In or near your city there is a representative trained in the equipment of schools to help you solve your problems.

THE VITROLITE COMPANY, Chamber of Commerce B'dg., CHICAGO

Vitrolite has an envied reputation as ideal material for toilet partitions and showers. To this the Vitrolite patented, self-locking, "boltless, screwless" jointing system has contributed a great deal. Note the size of the Vitrolite slabs. Slabs for wall use are furnished in sizes from 30 x 84 and 36 x 84.



Specify -

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BAYARD SCHOOL, PITTSBURGH, PA.
Equipped with
DAHLSTROM (H. M.) Smoke Screen

SMOKE SCREENS--THEIR USE

Smoke screens are used for protective measures in more than one way. Yet there are different kinds of smoke screens.

The naval smoke screen is to obscure ship movement from their enemy, thereby a protection against prying eyes.

The smoke screen commonly used in building, especially schools, is much different, yet the primary reason for its use is the same—Protection. In case of fire it will hold the smoke back, making stairways and corridors easily accessible—and if necessary Dahlstrom smoke screens will back up the otherwise fireproof building and hold fire back too.

Ask for free booklet "Safety First For Schools"

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Representatives in All Principal Cities.

FIGHT FIRE BEFORE YOU BUILD - NOT AFTER

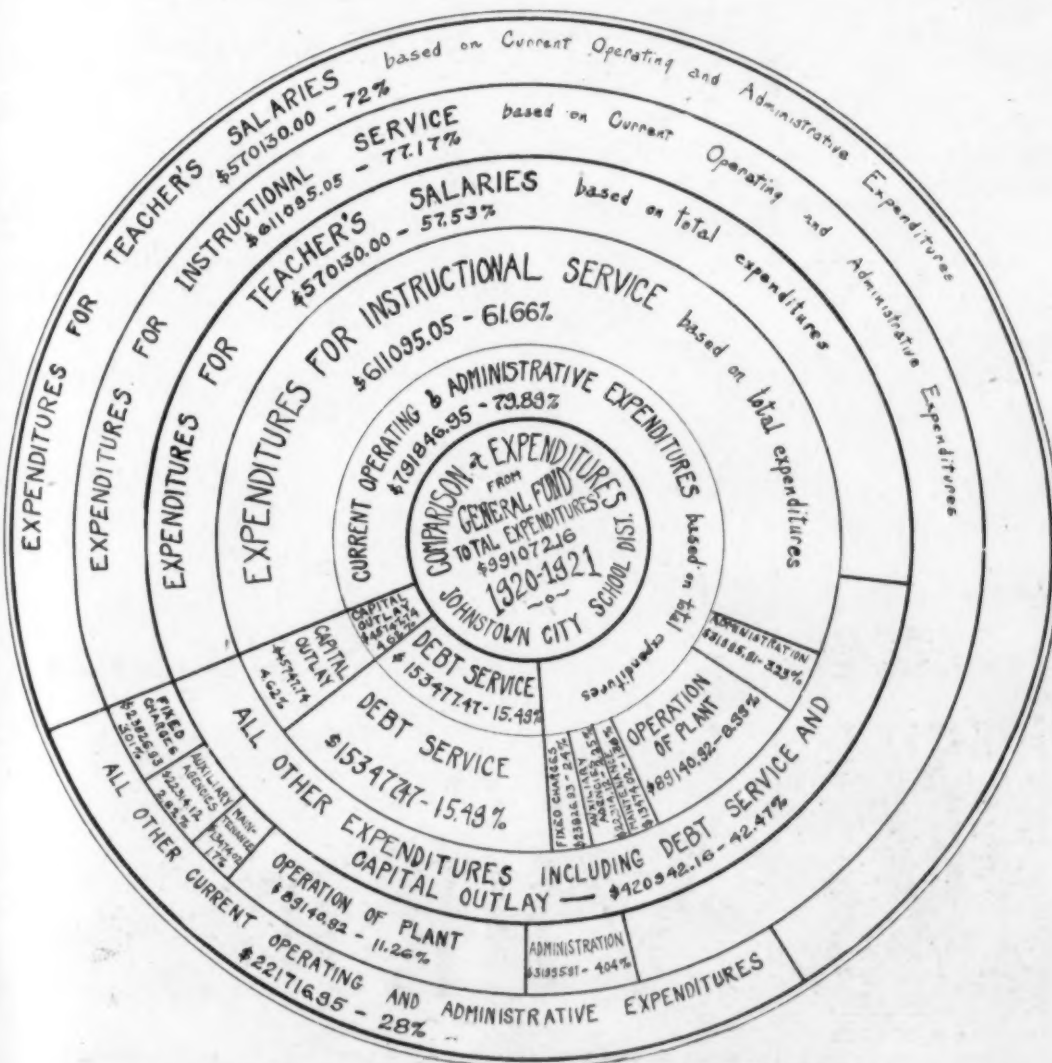


CHART ISSUED BY THE BOARD OF EDUCATION, JOHNSTOWN, PA.

CHARTING SCHOOL EXPENDITURES.

The presentation of school finances through the aid of graphs is an innovation which has its value. It tells its own story at a glance. Charles H. Meyer, secretary and business manager of the Johnstown, Pa., school district, believing that the taxpayers are entitled to complete information on every phase of school expenditure caused the chart presented herewith to be prepared. Wilbert C. Wehn, the head accountant for the school board, prepared the chart.

It represents all the expenditures made out of the general fund which is derived by taxation. The expenditures made for grounds and buildings are made out of a fund secured by the issuance of bonds.

It will be noted that the general fund consisted of \$991,072.16. By reading the outer circle it will be noted that 72 per cent went for teachers' salaries and 28 per cent for operating and administrative expense. The second circle adds the administrative cost of the educational department and separates the operating and maintenance cost.

Each circle presents the financial transactions of the school system from another angle, thus bringing every phase of expenditure into full view. A statement of distribution of the tax dollar from the above chart may be made as follows:

Costs.	
Teachers' salaries	57.53c
Other instructional service	4.13c
Administration	3.23c
Operation of plant	8.99c
Maintenance of plant	1.36c
Auxiliary agencies	2.25c
Fixed charges	2.40c

Total for current operation and administration

Debt service	15.49c
Capital outlay	4.62c

Total for capital expenditures

Total tax dollar

The chart has been worked out in a most commendable manner and deserves emulation on the part of other school systems.

The Needs of Our Country Schools

T. C. Hart, President, Board of Education, Palatine, Ill., Township High School

A few days ago our school officials received word that our high school had been placed on the fully accredited list of the University of Illinois for a period of two years. Our best previous standing had been a credit of one year on trial. Being put on the fully accredited list means that a graduate of the high school may enter the state university without taking any entrance examinations; it means in the words of the university officials that in their opinion we have an "efficient school."

One reason for our improved standing, I believe is the fact that a year ago when nearly every country school faced a crisis in the scarcity of good teachers, our board of education met that crisis in the best way possible. We realized that good teachers were scarce and that if we intended to better the standing of our institution; even if we intended to keep from going backward, we must meet the scarcity of good teachers by increasing salaries to a point where good teachers would want to come to our school. We realized that with such increased teachers' salaries and the increased cost of school supplies and equipment, we would be compelled to levy taxes for nearly double the amount which it had heretofore taken to maintain our school.

The question of taxes—especially school taxes, is always a subject for discussion. We knew that in some quarters we would be condemned if we increased expenses, but we took the plunge, and voted to pay salaries that would hold our good teachers and attract other good ones for our vacant positions.

Our Township has a total population of about 2500 people, about equally divided between the Country, Village, and the Township outside the village. The salaries which we have paid for the past year are: Principal \$3,000; our principal also acts as superintendent of the graded school with which we share the building; science teacher, \$1800 and our language and business course teachers \$1,600 each. The total expense of maintaining our school is about \$9,000 per year at our present expenses. We have an enrollment of about 50 pupils. When the list of the salaries, which we intended to pay was published in the local paper, there was a big complaint from some people who seemed not to realize that the expenses of maintaining a school had increased the same as in any other line of business or that the expense of living had increased to school teachers the same as to other people.

But the action of our board has been justified. For our \$3,000 we secured one of the best school principals in our part of the state. We have had one of the most successful school years in the history of our institution, and as a result we have been given just about twice as good a rating by our state University as we had before; all of which has proved to our satisfaction that if a district intends to maintain a good school, the only thing to do is to be willing to spend enough money to secure the sort of teachers who can give it a good school.

I might also add that some of the people who are at present the loudest in their praises of our school's good showing were, one short year ago, loudest in their condemnation of our board for increasing expenses that would mean added taxation.

In my duties as president of the board of education I have learned some things which I think will be of interest to the people of the country school districts.

Our high school gets pupils from the graded school with whom we share the building and from eight country school districts throughout

the township where the one-room school system still prevails. The pupils who come to us from the graded school usually greatly outnumber the combined enrollment from the country districts. During the past year the ratio has been about five to one.

In looking over the old records of our high school I found that in a surprising number of cases pupils from the country districts had dropped out before completing their high school course. Delving further into the records, I found that they had not had as good marks in their studies as had the pupils from the graded school in town. In an effort to get still further into the reason for such a condition, I started making frequent visits to the school and listening to the various classes. Now, I make no claim to being an educator, but to my layman's mind it was plainly apparent that some of the pupils from the country were not as well up in their work as were the pupils from the graded school. Of course, there were exceptions, where some were much more advanced than many from the graded school, and where some from the graded school were behind those from the country districts, but I am speaking of the general average. And the fact dawned upon me that the reason why so many pupils from the country districts dropped out of school, was because they had not had the proper preparation in the country districts to enable them to successfully carry the high school work, and it was not surprising that after making an effort to do so and finding themselves not as well equipped as the pupils from the graded school, continually dropping behind and getting poorer marks than the other pupils, they should become disheartened and discouraged and give up the battle and drop out of school.

Such a situation is not a pretty picture to look at, but it is a fact as I found it in our rural high school, and I will venture to say that the same condition of affairs will be found in every school, which operates under the same conditions as ours.

The "feeders" for our high school are the graded school in the village and the eight one-room schools of the township. It seems a shame that the same standard cannot be maintained in all of these schools so that the children com-

ing into the high school would all come with an equal foundation of education. Of course, all the pupils are supposed to have completed eighth grade work, but the pupils from different districts often show in their work the difference in teachers of bygone years. In our particular township all of the teachers are receiving good salaries as the salaries of country teachers go. The average salary is, I think, about \$100 per month; some districts are paying more than that.

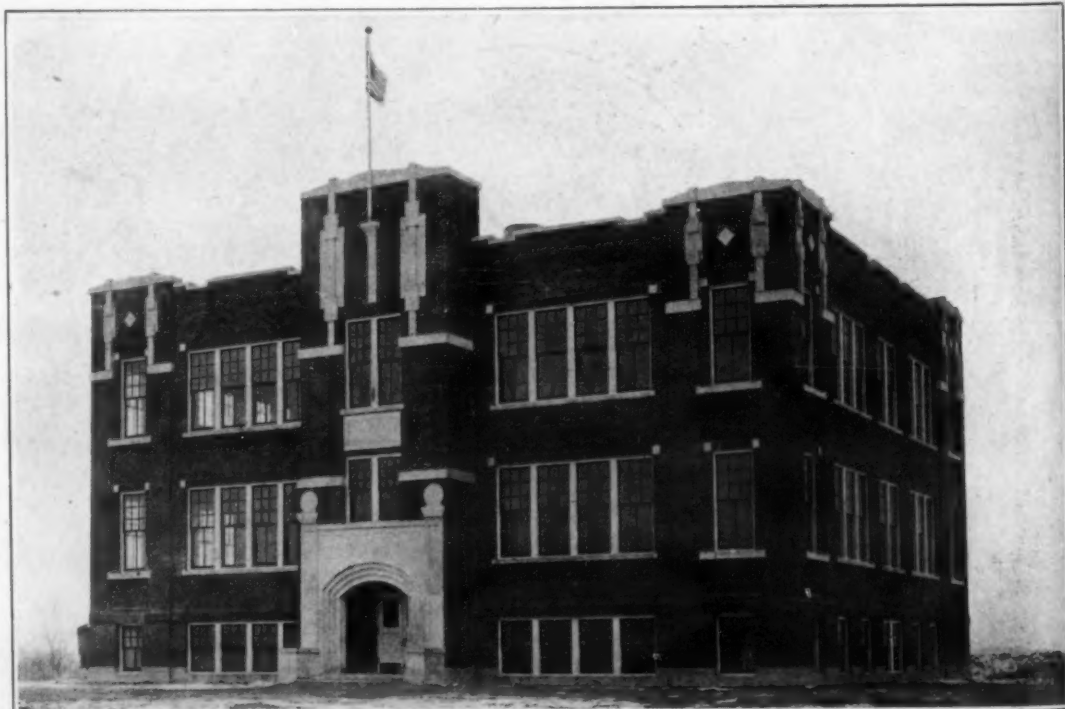
The teachers in the country schools of our township are largely beginners—girls; many of them graduates of our own high school, who are just starting out in their profession. Most of them have had no other preparation for teaching than their high school education.

It is a notable fact that a great many of these girls make very fine teachers, but just about the time they have gained enough experience to become really valuable, some graded school offers them a better job and the country districts see them no more. The result of this situation is that many of the schools which are preparatory schools for our high school, constantly have to hire new and untried teachers; sometimes they are lucky and sometimes they are not, and the net result is that the children suffer and do not get the proper preparation to enter high school and get higher education.

This condition of affairs as I have found it right here in our township is widespread. It is almost, if not quite, a national situation. It is a situation that we school officials have to face and to meet with some remedy if we are to give the children of our country districts an even break in the chance to get the benefits of higher education. The township high school is one step toward the solution of the country school problem.

The organization of a township into a high school district gives every farmer and every town person in the township an interest in that high school. It makes a high school education seem nearer and not so hard to obtain to the children of the country districts. Having a high school right at home for the maintenance of which every tax payer pays his share, makes it seem more of a home affair, and more children

(Concluded on Page 93)



CONSOLIDATED SCHOOL, ARGONNE, S. D.

This building, which cost \$100,000, employs five teachers and a principal and is considered one of the best equipped schools in the state. The pupils are carried to the school and are returned to their homes by means of three motor busses. Mr. A. B. Gehring is clerk of the board.

Warm Schoolrooms

PUPILS can't do good work in rooms that are alternately too hot and too cold. Educators and scientific men are agreed that an even temperature, unaffected by outside atmospheric changes, and properly humid, is essential to good health and good work.

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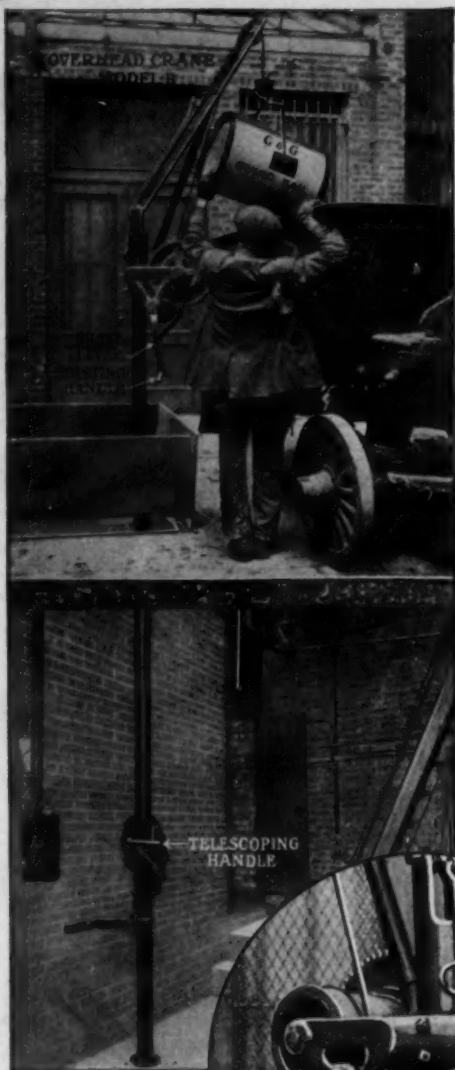
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can is emptied into
wagon without re-
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Hundreds of schools are now using G&G Ash Re-
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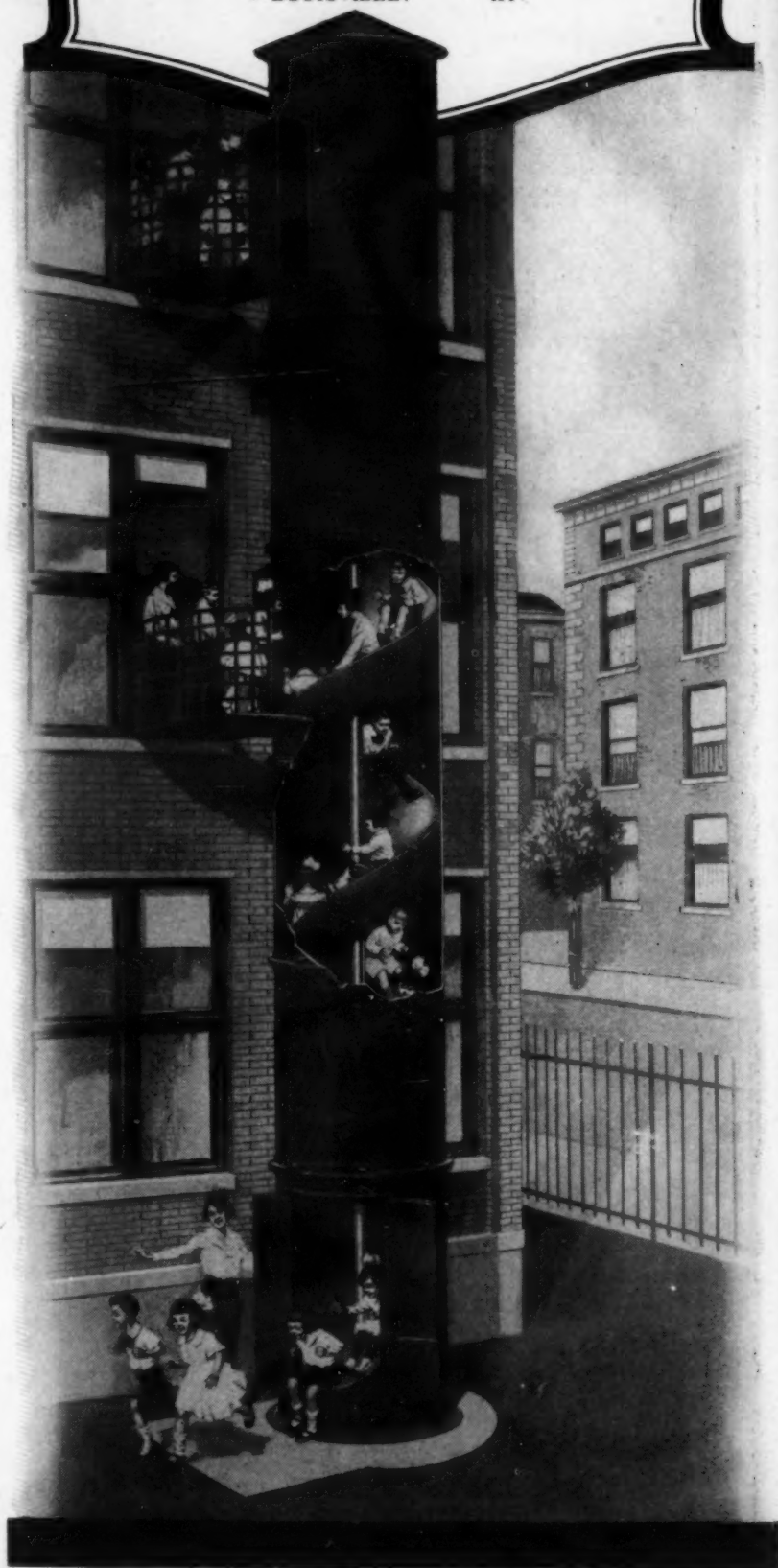
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The installation of the "Ozone Pure Airifier" in connection with Fan systems of heating and ventilation in schools, permits of re-circulation of a large percentage of the total air volume handled.

ADVANTAGES

Saving in Cost of Operation

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Pure air in rooms, free from organic odors and impurities.

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Ozone Pure Airifier Company
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(Concluded from Page 90)

from the rural districts attend high school than would otherwise. But to my mind, having the high school a community school does not in any way take care of the problem of a better and more adequate preparation for that high school for the children of the country districts, which still maintain the little one-room school.

Since becoming a school official and even before that I have made quite extensive investigations into the problems of our country schools, and as a result of those investigations I have found these facts:

Where there are township or community high school districts organized in rural communities there is a much larger percentage of children from that territory who attend high school than in the case where children are sent to some outside high school and tuition paid.

Where there is a consolidated school which takes care of both the grades and the high school the percentage of children who continue on into the high school is very greatly increased over the township or community high school districts, and the percentage of pupils who drop out of high school after once starting is much smaller in the consolidated school than it is in the township or community high school.

From the above facts it would seem to be indicated that the real solution of the country school problem is the Consolidated school. From the fact that fewer pupils drop out of high school in a Consolidated school it is plain that the grades in a consolidated school offer a much better preparation for high school than do the one-room schools of so many rural districts. With the proper grounding in the grades the children are able to carry their high school work and do not become discouraged and disheartened, and drop out like so many pupils from the one-room district schools do.

To show what a great advantage a good

graded school has over a country school, I will give a little illustration. Our grade school board recently invested \$500 in an outfit for visual education. They got their lantern, stereoscope and 600 slides which cover about every country and industry in the world. I was visiting the high school one day shortly after the new equipment arrived. I heard that it was being used in some of the grades, and I visited those grades. In one the class was studying about Asia. They were throwing pictures on the screen that showed people, the nature of the country and the customs of the people. In another room some youngsters were studying about the cold north countries. Pictures of people, places and scenes were put on the screen. Never in my life have I seen such enthusiasm over school lessons as I have seen in those grades where the visual education was being used. The spirit and eagerness of the pupils was wonderful to see. The superintendent of our schools has told me that the school work is fully 40 per cent more effective since the adoption of visual education.

It can be readily seen that pupils coming into high school from grades which use such modern equipment are much better fitted for their high school work than are the pupils from the one-room country schools. In a consolidated school every pupil would get the benefit of such modern equipment and all would be equally fitted for the high school work. In a consolidated school all the pupils have the benefit of competent, experienced teachers, who are specialists in their various subjects and their various grades.

From my investigations and from what I have seen and learned as a school official I fully believe that the solution of the country school problem lies in the consolidated school. It is a success in a great many places. It will be a success in many more as the years go by.

The problem of the country school is a real problem. We must face it and solve it. The solution will cost money, but it will be worth the cost. Always there will be a certain amount of opposition to any change in the school system or to increased taxation. Here in my home township our high school district was not established without opposition, the fine buildings and grounds which the graded school district owns, and of which we are joint tenants, was not obtained without bitter opposition, but the rewards have been more than ample to make up for all the effort. The returns in education to the children of our community have been more than the cost.

We are continually working here to solve the problems of good country schools and although we have not yet reached a full solution we are on our way with hearts full of hope and confidence in the future. All of us everywhere; farmers, people of the country villages, school officials and citizens in general, must do our best to help solve the problems of the Country School if we are to give to the children of the country districts that which is theirs by right—an equal chance with other children to secure the benefits of an adequate education.

That conservatism which holds that the school system is better off when a meddling public stays at home can only lead to that apparent harmony which means stagnation. The progress of the schools rests upon interest and criticism—a live interest in their success and helpful criticism which contemplates their success.

Frankness and the open-door policy minimizes the number of disgruntled taxpayers, and enhances the appreciation and understanding of the mission of the schools in making for useful citizenship.



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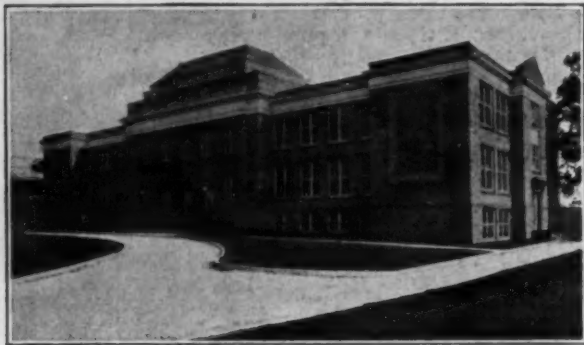
Compartments are the most reasonable for the purpose they serve. Economical—Permanent—Sanitary and of pleasing appearance.

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The economy of Weisteel Compartments is based on their permanency. They are made of steel and are practically indestructible and the steel surfaces cannot be defaced. Weisteel Compartments are furnished complete with partitions, doors, hardware, floor and wall fittings, and can be easily installed. The first cost is the only cost.

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All unnecessary joints have been eliminated and all parts are so shaped that there is no chance for dirt or water to collect. No projecting screws or bolts that are unsightly or that can catch the clothing. The whole construction is easy to clean and keep clean.

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Used for enclosing toilets, showers and dressing rooms in many of the largest city schools. They have stood up under every condition. That is why architects are specifying Weisteel Compartments. Finished in olive green or battleship gray as desired.

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School Finance Notes

Announce Convention Dates.

The National Association of School Accounting Officers has made arrangements to hold its next convention in Atlantic City, May 16-20. The New Jersey members of the Association have constituted themselves a state committee to boost the convention. The program for the meeting is being prepared by Mr. Arthur Kinkade, president, assisted by members of the executive committee.

BUILDING AND FINANCE.

—At Pearl River, N. Y., a new high school building costing \$250,000 is now in course of construction. There will be 21 classrooms, gymnasium, auditorium, offices, and supply rooms for manual training and domestic science. The cost per cubic foot is about 28 cents.

—Henry Barrett Crosby, school architect of Paterson, N. J., has completed a new school at Paterson, N. J., at an approximate cost of 53 cents per cubic foot. He is now building two schoolhouses at Clifton, N. J., at a cost of 43 cents per cubic foot and a high school at 40 cents per cubic foot.

—An equal distribution of the burdens of taxation and of educational opportunities among the several counties of the state, the raising by the state of one-third of the cost of education through a graduated inheritance tax and a graduated income tax on natural resources, is the recommendation made by the Montana State Teachers' Association.

—The people of Louisville, Ky., have voted a \$1,000,000 bond issue for new school buildings.

—In order to provide a school building program for the village district of Greenfield, Ohio, comprising several townships, Superintendent E. L. Porter has gathered and published all the financial facts relating to the district. The

school board has engaged Wm. B. Ittner to plan a \$325,000 high school.

—Since Supt. E. C. Broome has been in charge of the Philadelphia schools beginning with March, 1921, the school board has entered upon a five million a year school building program. One and one-half million dollars' worth of work is in progress, and one-half million dollars in additional bonds have been disposed of. The "five million dollars a year" program is to continue for five years.

—The National Council on Schoolhouse Construction has been organized with the following incorporators: Elizabeth G. Holt, Georgia; Dr. W. F. King, Indiana; J. Virgil Chapman, Kentucky; John H. Plunkett, Massachusetts; Samuel A. Challman, Minnesota; Charles McDermott, New Jersey; Frank H. Wood, New York; John J. Blair, North Carolina; Hubert C. Elcher, Pennsylvania; W. C. Muehlstein, William C. Bruce, Frank Bruce, Wisconsin. The executive committee consists of Frank H. Wood, Charles McDermott and Samuel A. Challman. The latter is the president.

—"It is singular how styles and customs swing backward and forward like the motion of a pendulum," said Robert F. Stokes, an architect of Birmingham, Ala. "The new high school at Woodlawn resembles in its architecture the Kensington Palace at London."

—The school board of Norwalk, Conn., has petitioned the city council for \$20,854 to meet the deficits for the years 1919-1922.

—The Wheeling, W. Va., school board opened schools a week later in September and effected a saving by paying the teachers three weeks' salaries. The teachers have entered a protest against this method of achieving economy.

—The Cincinnati, O., School Board finds itself hard pressed for sufficient school funds. Dr. John M. Withrow, president of the school board, and Dr. Randall J. Condon, superintendent, are agreed that the solution may have to be found in a reduction of salaries or a shortening of the school term. The voters at the fall election refused to grant an extra tax levy.

—The school board of Pawtucket, R. I., proposes to build a million dollar high school in which textile studies are to be emphasized. The project is opposed by Prof. Herbert F. Davison of Brown University on the plea that "schools are

to teach people how to live, not how to make a living."

—At Indianapolis, Ind., the suggestion is made that an architectural advisor, at a salary of \$6,000, be employed and placed under the business director of the school board.

—"Some new and larger unit of taxation must be adopted," said President W. L. Thompson of Troy, New York, recently, "to secure equitable distribution of school monies and efficient administration." Mr. Thompson is the president of the Associated School Boards of New York.

—The citizens of Albany, N. Y., recorded an overwhelming majority in favor of a \$200,000 bond issue for new school buildings.

—Cleveland has made a survey of its school buildings with a view of ascertaining to what extent the physical plant has a direct bearing on the health and comfort of the pupils, and to forecast the future requirements in improvements and enlargements in school housing.

—Higher tax levies for the schools were defeated by the citizens of Cincinnati, O., at the fall election by a vote of 60,483 to 51,570.

—Kent, O. A new high school is in process of completion. It is planned to use the building for the fiftieth annual commencement exercises to be held in June, 1922.

—Shawnee, Okla. A new Junior High School has recently been completed at a cost of \$300,000. The building will accommodate about one thousand pupils.

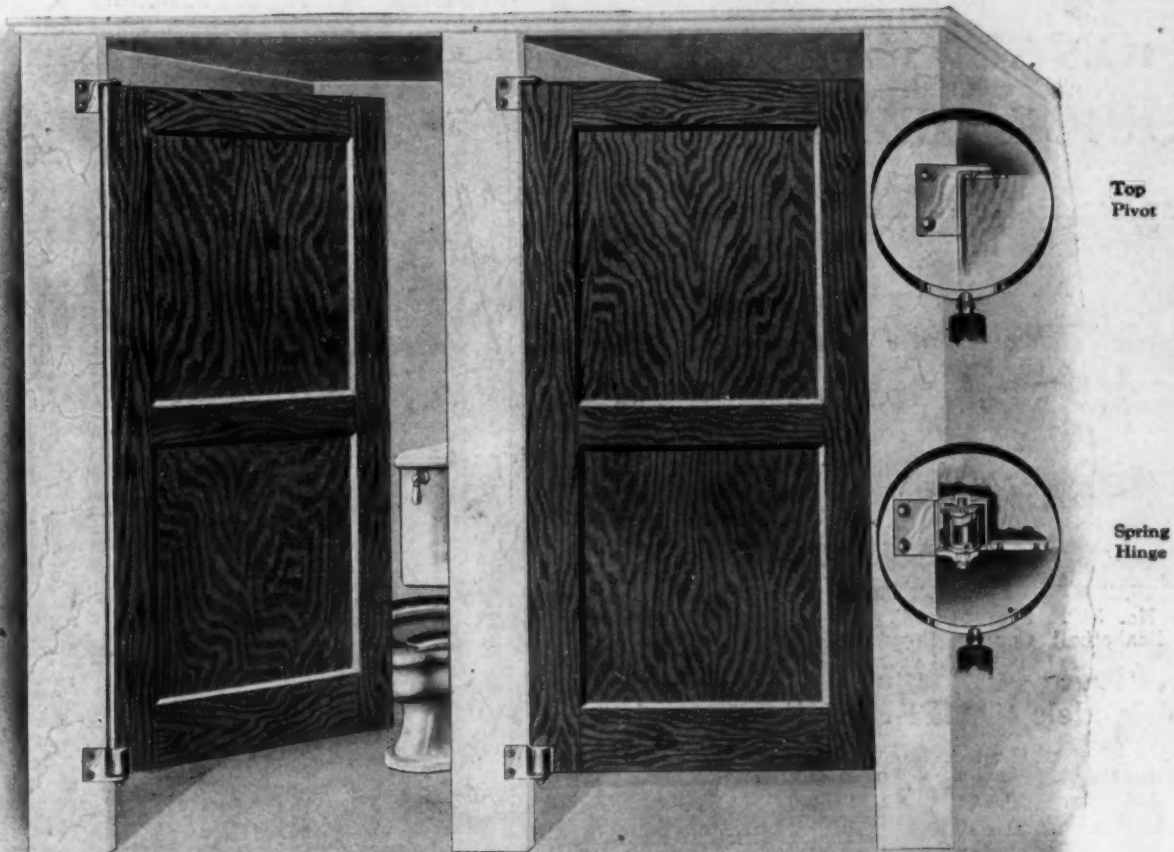
—Cudahy, Wis. Construction work will begin shortly on a new ward school to cost \$165,000. The building will contain a gymnasium and an assembly room.

—Smithville, Tex. The school district has been extended to include 25,000 acres of land. The district is prepared to vote on a \$1 tax rate and a \$90,000 bond issue for building purposes. The extended boundaries will include 1,208 scholastics. When the new high school plant is provided, it is planned to add a number of new courses along the line of domestic arts, manual arts and vocational subjects.

—McComb, Miss. At a recent school election the citizens approved a bond issue of \$80,000. About \$70,000 of the issue will be expended in the erection of a new elementary school and \$10,000 will be used in equipping the athletic grounds of the city schools.

(Concluded on Page 97)

The Best Hinge for Hard Service



Lawson's "Universal" Pivot Spring Hinge

THE hinges used on school toilet and lavatory doors must stand up under unusually hard usage. The doors are kicked open, slammed shut, and swung on continually.

Right here is where Lawson's "Universal" proves its worth. Being a pivot hinge, it gives the door an absolutely sagless support that will stand up indefinitely under the most exacting conditions. Without being clumsy, its construction is sturdy. Its neat and finished appearance adds to the attractiveness of any job.

This hinge is "Universal" in its application. It

can be used for either single or double acting doors opening in or out with either right or left hand swing. Adjustable, after installation, to any alignment with regular or reverse spring action.

This general adaptability to any construction insures against delays due to last minute changes in plans or details, a time and money saving feature of no small importance to architects and contractors.

And—Lawson's "Universal" Hinges **cost no more** than the ordinary kind. Once you use them you will be as enthusiastic about them as the hundreds of others who know now what they will do. Investigate!

See pages
1180-1181 in *Sweet's*

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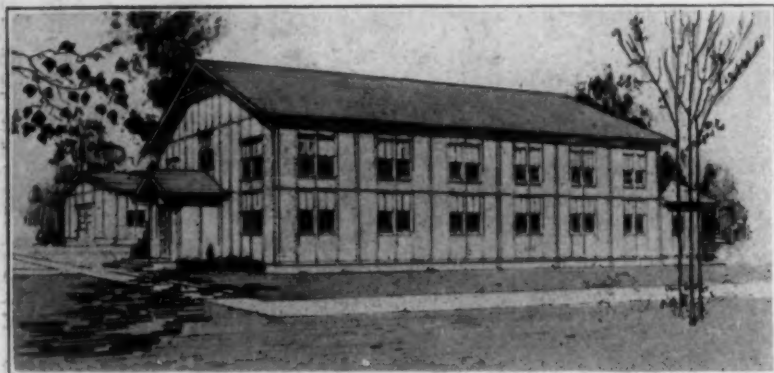
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Standard Models "AMERICAN" Gymnasiums

Catalog No.	Size	Overhead Clearance
505	25 x 71'	9 or 10 ft.
506	31 x 59'	10 or 12 ft.
510	38 x 63'	16 ft.
511	44 x 63'	"
512	44 x 76'	"
513	56 x 63'	"
514	56 x 76'	"

Construction meets strictest building requirements. Heavy roof trusses and supporting posts. Roof-sheathing and walls in panels. Double floor with heavy joists. Top floor vertical grain fir. Weathertight, insulated walls.

COMPLETE MATERIALS—doors, windows, roofing, rough and finish hardware; outside walls and trim primed white.

Materials carefully manufactured and fitted, ready for quick erection.

"AMERICAN" buildings save you 40% of ordinary construction cost.

We specialize in standardized, factory-built schools, teachers' cottages and other buildings for school uses. Send for catalog, blue-prints and prices f. o. b. your city.

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Agents for Ohio: Educational Supply Co., Painesville, Ohio.

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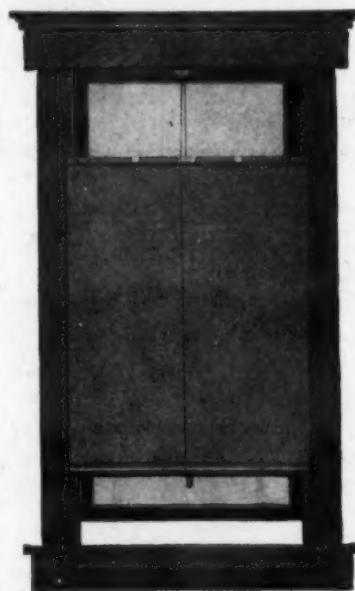


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Modern Practical Decorative

"The Window Shade Pre-eminent"

Draper's Adjustable Window Shades are durably and carefully made to insure long service. Their mechanical construction is simple, positive in action and absolutely "fool-proof." The rollers,

which are especially built, are large and strong and are equipped with an oversized spring which insures their rolling and carrying qualities. Any child can operate a Draper Shade without the slightest difficulty.

Draper's Adjustable Window Shades are guaranteed to give satisfactory service and will continue to do so over a long period of years,—because Draper's Adjustable Window Shades are built for service—and meet every window shade requirement most satisfactorily, efficiently and economically.

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Meet Every School Requirement*

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Every stair tread, door saddle, floor plate, trench and manhole cover, running board, floor around power driven machinery, car step and the like, is an imminent danger spot unless made safe through the use of an effective anti-slip material. Falls on unprotected walkings are responsible for more deaths—five to one—than fires, and the most prolific cause of serious injury.

FERALUN makes walking surfaces safe. It is made of tough, resisting metal with an abrasive grit embedded in its wearing surface, is free from tripping grooves and projections, stays flat, is long-lived and all things considered is decidedly low in initial cost.

There are 20,000 installations of FERALUN on New York City subway stairs, and in public places in every large city. It is working all the time. Look it over. Ask for samples and prices,—start something for your own ultimate peace of mind and financial betterment.

AMERICAN ABRASIVE METALS CO.

50 Church Street, New York, N. Y.



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ANTI-SLIP-TREADS

(Concluded from Page 94)

—Hampton, Va. Contracts have been let for a number of school building projects in the city and county of Elizabeth City. Two eight-room elementary schools for white pupils and one eight-room building for colored pupils will be erected for the Wythe District at a cost of \$175,000. Both buildings will be ready for occupancy in September, 1922.

Additional buildings include an eighteen-room high school to be erected at a cost of \$130,000 for Hampton City; an eight-room addition at \$50,000 for the Phoebus District and a two-room building for colored pupils, at \$5,500, for the Chesapeake District.

The building program followed a complete survey made of the school system with the aid of the state education department. The survey was made by Architect Charles M. Robinson, of Richmond, at the request of the board of education. The total value of sites, buildings and equipment in the county before the present building program was \$267,000. The total cost of the present program will be \$360,000.

—Mt. Vernon, O. The board has approved a suggestion of Supt. Elliott for a new system of business accounting and school supply purchasing.

—West New York, N. J. A grammar school accommodating 35 classes has been completed. The roof of the auditorium has been arranged for an open air physical training court. This is the third grammar school to be completed within a period of seven years.

—Tazewell, Va. Tazewell County recently adopted the slogan of "As good schoolrooms for country school children and teachers as for town children and teachers" for its building campaign. Five schools were completed the past summer in isolated places and as many more are planned for the near future.

—Colfax, Wash. An additional tax of twenty mills has been voted this year by the people of the district. The school enrollment is 852 and the value of the school plant is estimated at \$240,000.

—Harrisburg, Pa. A sixteen-room school will be erected to replace two old buildings in the same district.

A new cosmopolitan co-educational senior high school will be erected to accommodate 2,500 stu-

dents. The building will be built on a forty-acre tract of ground.

—Fulton, N. Y. The citizens have recently voted \$415,000 for the erection of a high school, \$50,000 for the enlargement of one of the grammar schools, and \$20,000 for a four-room grammar school. The plans for these buildings have been prepared by Architect Wilson Potter, of New York City. It is planned to have the grammar schools ready for occupancy in September, 1922.

—Hornell, N. Y. Plans have been prepared for a new Junior and Senior High School, to be erected in the near future at a cost of \$400,000. Tooker & Marsh, New York City, are the architects.

—Wappingers Falls, N. Y. With the completion of certain improvements in the local school, the standing of the school has been changed from a senior to a regular four-year high school. Extra teachers have been added to the staff, generous additions for the library and apparatus have been ordered and running water piped to the building. Mr. W. E. Archer acts as principal.

—Public School No. 2, Manhattan Borough, New York City, was 110 years old in November. The anniversary was formally celebrated by the graduates who held a dinner at the Hotel Astor on Saturday, December 17th. The school was opened in November, 1811, and though several times enlarged, has never been moved from the original site.

Among the prominent persons who were graduated from the school are Supt. W. L. Ettinger; Mr. Thomas W. Churchill, former president of the board of education; Congressman A. J. Griffin; Prof. Edward Kassner, and Catharine M. Williams, who taught for more than half a century in the city schools.

—The school building cost in Iowa rose from .115 average cost per cubic foot in 1910 to .498 per cubic foot in 1920. For 1921 the cost has been reduced to .339 per cubic foot. During the period of 1910 to 1920 the average cost per pupil rose from \$115.82 to \$352.44, and is now reduced to \$187.64.

—The women of Yonkers, N. Y., brought about alterations in the plumbing of the public schools which entailed a cost of \$160,000. The toilet facilities of the schools were deemed inadequate

and insanitary, hence the improvement.

—Norwich, N. Y. An eight-room grade school was opened in September. A model house for household economics use has also been occupied.

Plans are being prepared for an addition to the high school to contain a gymnasium and auditorium, and also the construction of a new school and public library.

—Aberdeen, S. D. A building program is in process of completion which is expected to provide adequate accommodations for a number of years. The program was made possible two years ago when the citizens voted \$500,000 for building purposes.

The new buildings include an eight-room addition to be completed and occupied during the next year, a fireproof Junior High School accommodating five hundred pupils and a ten-room grade school to be occupied in September, 1922. The buildings were designed by the architectural firm of W. W. Beach & Company, of Sioux City, Ia.

—Duluth, Minn. The board of education has ordered a survey of the school plant to determine the policy to be adopted for providing adequate accommodations. The survey will cover first: the alteration of the present buildings to make them safe, sanitary and adequate; second, the probable abandonment of certain buildings as the city grows, and third, the location of new buildings to take care of future growth in the school population.

—Washington, Pa. At a recent election the citizens voted to have a city charter. This action provides for the amalgamation of several communities now separated and insures the operation of a building program giving additional schoolroom accommodations.

—La Crosse, Wis. A new school building program adopted a year ago involves an expenditure of \$1,300,000 and is spread over a period of five years. The program which involves the construction of new buildings, additions to playgrounds and equipment, and the modernizing of all buildings has been begun with the completion on September first of the new Hogan School. The school contains in addition to classrooms, a kindergarten room, domestic science and manual training rooms, and a gymnasium. Mr. Otto A. Merman, La Crosse, is the architect.

W. Hardin Hughes, District Superintendent and High School Principal, Claremont, California

With specific information of this kind at hand, the principal can talk directly to the point in his individual interviews with students.

A graphical report card is another device employed in our high school. We believe that the most important fact to be conveyed in any reporting system is the standing of the individual relative to the average standing of students in

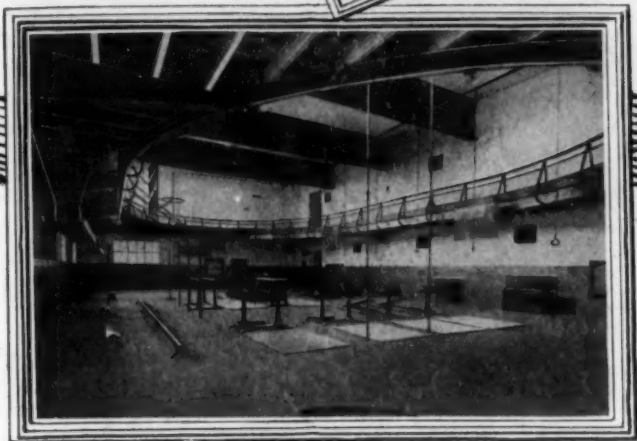
CARD FOR RATING PUPILS' PERSONAL CAPACITY AND WORK.

KEY TO MARKING AND CREDITING SYSTEM		
Marks	Meaning of These Marks	Crediting Value for Full Year Subjects
14+	"14+" indicates extraordinary ability, initiative, originality and attainment. An extra piece of individual work approved by the teacher and principal is required for this mark. One or possibly two students in one hundred should be expected to receive the work required for this mark. It is reserved especially for the genius in a given subject. The student receiving this mark must also satisfy the requirements for all lower marks.	1.3
14-	"14-" indicates superior ability, interest, initiative, imagination and attainment. In addition to meeting the requirements for all lower marks in a given subject, the "14-" student must cover an extra step of subject matter approved by the teacher and principal. Approximately four students in one hundred should be successful in doing the work required for this mark.	1.2
1	"1" indicates excellence in meeting the general requirements of a given subject. The student receiving the 1 mark must show ability, interest, self-reliance and independent action in the work. His assignments are accurate, his written work accurate, neat and legible, his attendance regular and his attitude toward school commendable. Approximately twenty students in one hundred should be able to do the work required for this mark.	1.1
	"2" indicates good average work and attainment in a given subject. To receive the "2" mark, the student must satisfy the general requirements of the subject with respect to the specified number of oral and written work, exercises, note books, translations, book reviews, tests, etc. All work must be reasonably prompt, neat and accurate. Good attention in class and proper use of school time in school hours are taken into account in awarding this mark. Approximately fifty students in one hundred may be expected to receive the "2" mark.	1.0
3	"3" indicates ability and attainment somewhat below the medium. The quality of work entitling the student to this mark is just a few below the average as the quality of work for the "1" mark is above the average.	.9
	"4" indicates the next lower step in the quality of work accomplished. It is as much inferior to "3" as "3" is inferior to "2."	.8
5	"5" indicates absolute failure	

The swimming pool must be closely co-ordinated with shower baths and lockers.



Medart Engineering Service takes building plans into consideration.



Modern gymnasium designed and equipped by Fred Medart Mfg. Co.



Typical of thousands of Medart Locker Room Installation

CO-ORDINATION of Physical Education Units

Close co-ordination of gymnasium, swimming pool, shower baths and locker rooms is a factor which largely determines the efficiency of the entire Physical Training Department. This is fully recognized by architects, designers and physical directors.

The chief value of Medart Engineering Service, developed through 50 years of experience, lies in planning *complete* physical training departments, so co-ordinated that the greatest possible good is derived from the individual units, as well as from the department as a whole.

Our ability to assume complete responsi-

Fred Medart Mfg. Co.

bility for planning and designing physical training departments is the best reason why we should be entrusted with this work. Medart Engineering Service is given freely, without thought of immediate gain, to anyone interested in the planning of gymnasium, swimming pool, playground or locker room installations.

Put your problems up to Medart—get the full benefit of Medart Engineering Service; with it comes the assurance of truly intelligent co-operation.

Send for Catalog L; recognized as a textbook on gymnasium, locker room and playground planning.



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A Sanitary Plumbing Feature That Ought to be in Every School

There are two features about Watrous Duo-jet Water Closets that should command the consideration of every school board in the country:

1. They cannot foul, and hence safeguard the health of the community.
2. They save two to three gallons of water on each flushing, and hence save on water bills.

The features which give Watrous Duo-jet Closets this superiority are patented.

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Two powerful converging jets of water insure immediate, thorough flushing. There is no delay in action—and a tremendous economy in water.

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Sections 14 ft. long, 3 to 15 seats high. Clear, strong lumber, painted one coat. Foot boards below seats to protect clothing. Write for particulars.

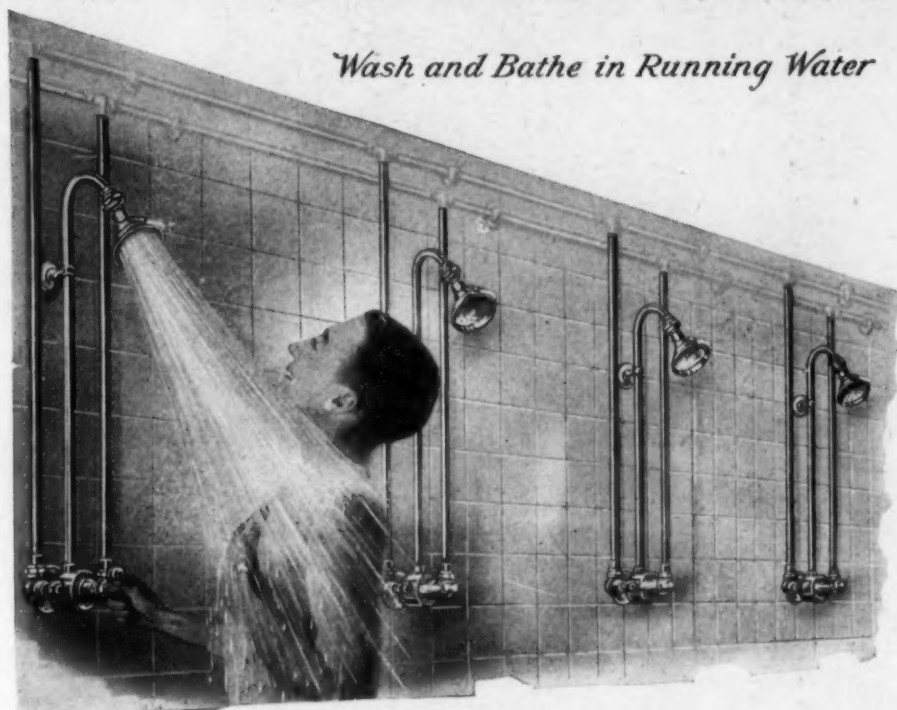
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The Mixometer, Kas-Bras Head and Lock Shield Controlling Stops of Speakman Institutional Showers insure water economy



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Here's How

The Mixometer gives the desired water temperature instantly without water waste. The Mixometer has been tested in school use for ten years.

Each hole in the Kas-Bras Head is drilled separately and at an angle so that all the clean, sparkling spray is thrown on the bather—none wasted.

You set the Lock Shield Controlling Stop so that they will allow only a certain amount of water to pass per minute. 6 gallons are enough for a cleansing invigorating shower with a Kas-Bras Head.

The Kas-Bras Head regularly supplied is the Speakman Anyforce—has a china lever handle control. When specified, head with concealed control will be furnished instead. We'll be pleased to place our entire experience at the disposal of school boards interested in showers—also to send any booklets desired.

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SHOWERS



School Hygiene Notes

HOW A SCHOOL CAN COMBAT DISEASE.

What Columbus, Nebraska, Did in Eliminating Diphtheria.

For several years the city of Columbus, Nebr., had not been free from diphtheria. There are 1,200 children in the public schools and 300 in the parochial schools.

Superintendent C. Ray Gates became interested in the so-called Schick Test. A school nurse was employed to attack the problem of preventing a threatened epidemic of diphtheria. The president of the board of education lent his cooperation in securing the support of the mayor and the health department for the application of the Schick Test. A conference of the interested parties was held.

"Most of the laymen present had never heard of the Schick Test," said Superintendent Gates, "but the doctors of the city came out 100 per cent strong in favor of giving it, and agreed to do the work without charge for their services if the city would pay for the materials used and the nurses necessary to assist. Considerable discussion followed and a second meeting was necessary. At this meeting the board requested the superintendent of schools to send a circular letter to parents explaining the nature of the test and asking that permission be granted for the test to be given to their children. They also agreed to request the city council for a sufficient appropriation to cover the items already mentioned. At the regular meeting of the city council the next evening \$150 was appropriated to cover the necessary expenses.

Securing Consent of Parents.

A letter was then sent by the school authorities in which the following statements were made: "Diphtheria can be prevented. People need not have it at all in these days. Some are able

to resist the germs of diphtheria. Others are not. Children between the ages of one to fifteen years are found to be most susceptible to diphtheria.

"A very simple and reliable method known as the Schick test has been used for several years. It shows whether or not the child is immune to the disease. The test is made by the doctor injecting a special preparation into the skin on the arm. It causes no pain or inconvenience in even the youngest children. It has been given to infants under one week old.

"Susceptibility to diphtheria is determined by the appearance of redness around the point of injection on the arm in from 12 to 24 and 48 hours. "If a child shows that he is not immune to diphtheria, he can be inoculated, and so protected against the disease for a period of at least five years and possibly for life.

"It is the desire of the Board of Health, the Board of Education, the physicians and others in places of responsibility to avoid the possibility of an epidemic. To this end a joint meeting of those indicated above was held Saturday evening, at which it was decided that I should send this circular letter explaining the Schick test and asking parents to indicate by Tuesday morning, October 18, if you are willing to have your child or children given this test at the schoolhouse, under the direction of the Board of Health and at the expense of the city."

Disease Effectively Checked.

In the meantime the newspapers had given large publicity to the matter and the movement was endorsed by the local Rotary and Lions Clubs. The returns from this communication indicated that 79 per cent of the parents were in favor of having the test given to their children. The superintendent then sent out a bulletin asking the teachers of the city to call at the homes of the parents who had declined to give permission for the test and explain the matter personally. The result was that 43 per cent of these parents who had previously refused now gave their permission for the test to be performed.

The necessary materials were secured through the board of education at wholesale at \$45 per thousand. Nurses were secured from local hospitals to assist. A team consisting of two doctors and two nurses went to the schoolhouses and

children were passed through their hands at the rate of from 50 to 70 an hour. One doctor gave the test on the right arm and the other gave the control on the left arm. They began with the oldest children in the building and went to the smaller, in order to avoid frightening the children.

The doctors returned to the school buildings on succeeding days and read the re-action at the end of 24, 48, 72 and 96 hours. The sheets upon which the data had been assembled were then were tabulated. It was found that about 62 per cent of the children taking the test were susceptible to diphtheria.

"At the present time the process of immunization by means of toxin-antitoxin treatment is going forward," writes Superintendent Gates. "The parents of the children are bearing the expense of immunization themselves. The cost of immunization is estimated at from \$6.00 to \$10.00 per child. Authorities maintain that a child so treated will be immune for life. As far as we have any knowledge, Columbus is the first city in the West to attack this problem in such a wholesale fashion. With the exception of the Christian Scientists, the osteopaths, and the chiropractors, there has been almost no objection and even these objectors have confined their activities to mild protest and refusal to have the test given to their children."

HYGIENE AND SANITATION.

—Ardmore, Okla. Children in the Junior High School are classified and placed in the different courses according to their intelligence quotients.

Physical examinations are made of each child and the physical records are kept in permanent form in the office. A recent comparison of the intelligence quotients with the physical records disclosed some interesting facts. The 33 children of the high school with the highest I. Q., ranging from 117 to 137, and the 33 with the lowest I. Q., ranging from 72 to 87, were studied. An examination of the physical records of these pupils showed that nine of the 33 with the highest intelligence quotients had some form of physical defect. Of the 33 with the lowest intelligence quotients, 29 had some form of physical defect. From this survey it appears that a great many pupils are backward intellectually because of some physical defect which is remediable.

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Plumbing Fixtures for Schools

are designed and built to meet every school requirement.

For years of efficient and uninterrupted service, install **NONGCO** Plumbing Fixtures—they insure absolute satisfaction.



Before specifying plumbing fixtures for your schools, get in touch with our experts. They are always glad to offer suggestions and be of assistance to you in their selection and installation. This service is furnished gratis and entails no obligation. Avail yourself of it. Write us today.

N. O. Nelson Mfg. Co.

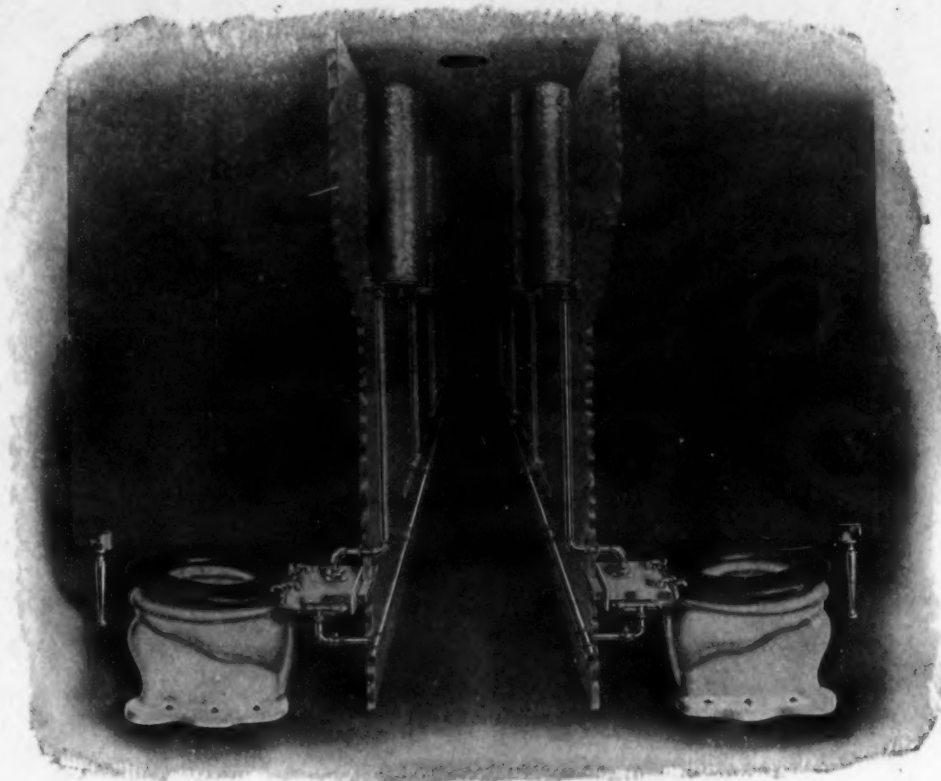
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Ventilated Closet Stalls With Utility Chamber

—Norwich, N. Y. A school nurse has been employed for the next year.

—Harrisburg, Pa. Penny lunches have been inaugurated in the poorer sections of the city. A recent study of 76 pupils enrolled in the open air school shows that 61 have gained in weight since September, an average of one and one-half pounds each; ten weights remained stationary and five lost an average of 4/5 of a pound each. The total cost of food per day for the school was \$16.22, or an average per capita of 21 cents.

—Wheeling, W. Va. The Emerson method of treating malnourished children has been introduced with excellent results.

—Van Wert, O. A dental clinic has been installed in the Central building. All children have their teeth examined. Those unable to pay for treatment are treated free at the school.

—Hamilton, O. Seven additional tracts of land have been purchased to provide for playgrounds and for school expansion. One ten-acre tract is being made into a high school athletic field including ball diamonds, football field, tennis courts, quarter-mile tract, with a 220-yard straightway and provision for jumping contests. Medical inspection and dental work have been broadened in scope this year.

—St. Louis, Mo. The board has ordered 75,000 copies of a circular containing information regarding diphtheria anti-toxin and the means by which the toxin-antitoxin treatment can be given. The pamphlets are to be distributed through the schools to convey information to pupils and parents regarding measures of protection against the disease.

—Decatur, Ill. Dr. Freidinger has been placed in charge of the dental clinic, at a salary of \$10 per week. The Social Service Bureau has made itself responsible for the salary of the dentist.

—St. Joseph, Mo. Examinations of pre-school-age children have been carried on under the supervision of the director of hygiene. The school buildings of each district were used as centers to which the mothers brought their children. The work was done by the local physicians, under the direction of the supervisor of hygiene. The followup work was carried out by the school nurses. The plan aims to prevent many of the illnesses to which children are susceptible before entering the schools, and to put

the children in better physical condition when they actually enter.

—Rahway, N. J. Additional playground space has been purchased for each of the grammar schools. An assistant instructor in physical training has been employed in order that the work may come up to the state standard.

A dental clinic has been in operation since September first. All pupils are examined for defective teeth. Those in need of treatment are urged to consult their own dentists.

—Coatesville, Pa. Through the cooperation of the Red Cross and other civic organizations, a free dental clinic has been opened. The children who need the service and cannot pay, are given treatment free of charge.

—Fairport, N. Y. The practice of serving milk to children of the first five grades which was tried last year has been extended to the sixth grade this year. Milk is sold in half-pint bottles, at cost, to all children able to buy it. All undernourished children unable to buy the milk are furnished free bottles by the parent teacher association which maintains a fund for that purpose. The milk is served each morning at ten o'clock and the entire procedure occupies less than fifteen minutes' time.

—Hackettstown, N. J. A woman attendance officer and a school nurse have been employed. These ladies, in cooperation with the schools, the Red Cross and the Child Welfare Association, have done splendid work in increasing school attendance and improving health conditions. The medical inspector takes charge of cases referred to him by the nurse. The followup work is carried out with the aid of a "flivver" which has been furnished the department.

—Youngstown, O. The board has recently established a sight-saving class. The work is conducted in cooperation with the state education department.

—Halifax, N. S., Canada. The first open-window class was established in September. A sight-saving class has been in operation for the past three years. There are also five classes for sub-normal children.

—Celina, O. Physical examinations have been made of all children in the first four grades. All pupils were weighed and measured for weight and height. Slightly more than 67 per

cent were found to be underweight. The local community club has cooperated in providing funds for milk lunches for pupils in the first six grades.

—Ambridge, Pa. A school nurse has been employed. As a result of her suggestions a number of physical defects have been corrected.

—Bloomfield, N. J. The board has purchased a site of eleven acres for an athletic field and playground. The plot of ground is only a few minutes' walk from the high school.

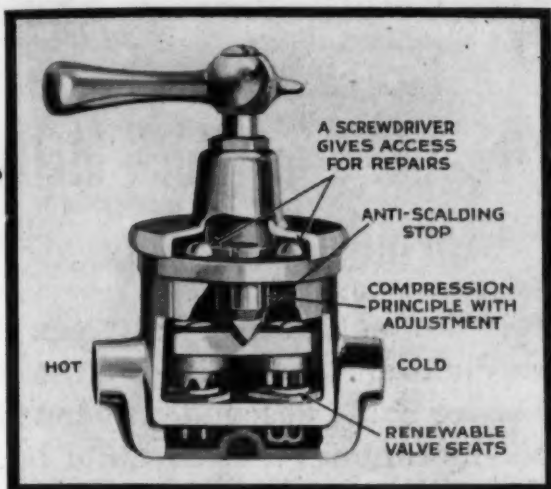
—A severe criticism of the systems of ventilation in use in many of the public schools of New York City is contained in a report recently made public by Dr. Henry R. Linville, president of the Teachers' Union. The report which is based on a study of 61 different schools, declares that ventilating systems have been entirely abandoned in many schools because the boilers are incapable of carrying a sufficiently high pressure to operate them. Ventilation by natural means is preferable to artificial ventilation, declares Dr. Linville, who maintains that artificial ventilation devices, even though they may have been installed at very great expense, and at considerable trouble, may be defective and impracticable in operation. Even when a mechanical system of ventilation is necessary, it does not justify failure to open windows at all times when the weather conditions permit. The latter statement is in direct conflict with the views which have been held and enforced with reference to the subject, and as a result of which no one has been permitted to open windows while ventilating devices were in operation.

Dr. Linville points out that the prevalence of low-temperature schoolrooms is extreme. Rooms are reported to the Teachers' Union in which the temperature is often as low as forty degrees, and others in which the temperature does not rise to 69 degrees until 10:30 or 11 o'clock.

One teacher in a Brooklyn school declares she has often been compelled to teach in a room with a temperature of 50 degrees or double up with some teacher in a warm room.

Dr. Linville points out that some of the experiences of teachers are well-nigh unbelievable but declares that the schools are not run according to the standards prevailing in many other public institutions.

(Concluded on Page 105)



AS THE WEAKEST LINK IS
TO THE STRENGTH OF A CHAIN
THE MIXING CONTROL IS TO A SHOWER

NIEDECKEN SHOWERS

ARE RELIABLE UNDER ALL
CONDITIONS

IN THE SCHOOL GYMNASIUM
OR MOST PALATIAL RESIDENCE

BECAUSE

THEY ARE OPERATED BY
THE NIEDECKEN MIXER

NOTE THE SIMPLICITY OF CONSTRUCTION

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CLOSET SEATS

INSTALL WHALE-BONE-ITE TOILET SEATS

during
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and eliminate
that needless expense
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One that stands abuse
is impervious and acid-proof.

Types for all standard makes of closets.

FIRST COST LAST COST

Sold by plumbing trade and jobbers.

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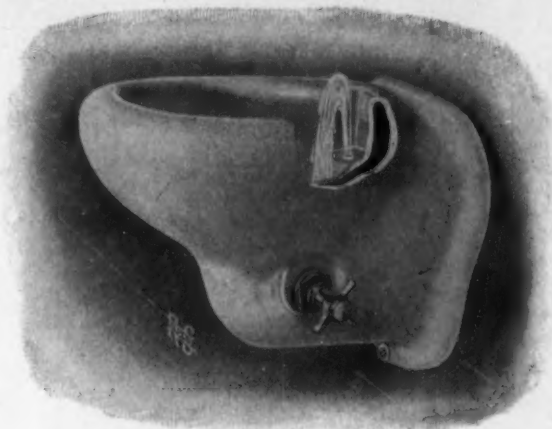
Prompt shipments.

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RUNDLE-SPENCE "VERTICO-SLANT" DRINKING FOUNTAINS

feature a "protecting jet" which absolutely
eliminates all possibility of contamination.



No. C-92

A most appropriate design for school use. It is neat in appearance, perfect in construction and will harmonize with the most simple and elaborate surroundings.



No. C-143

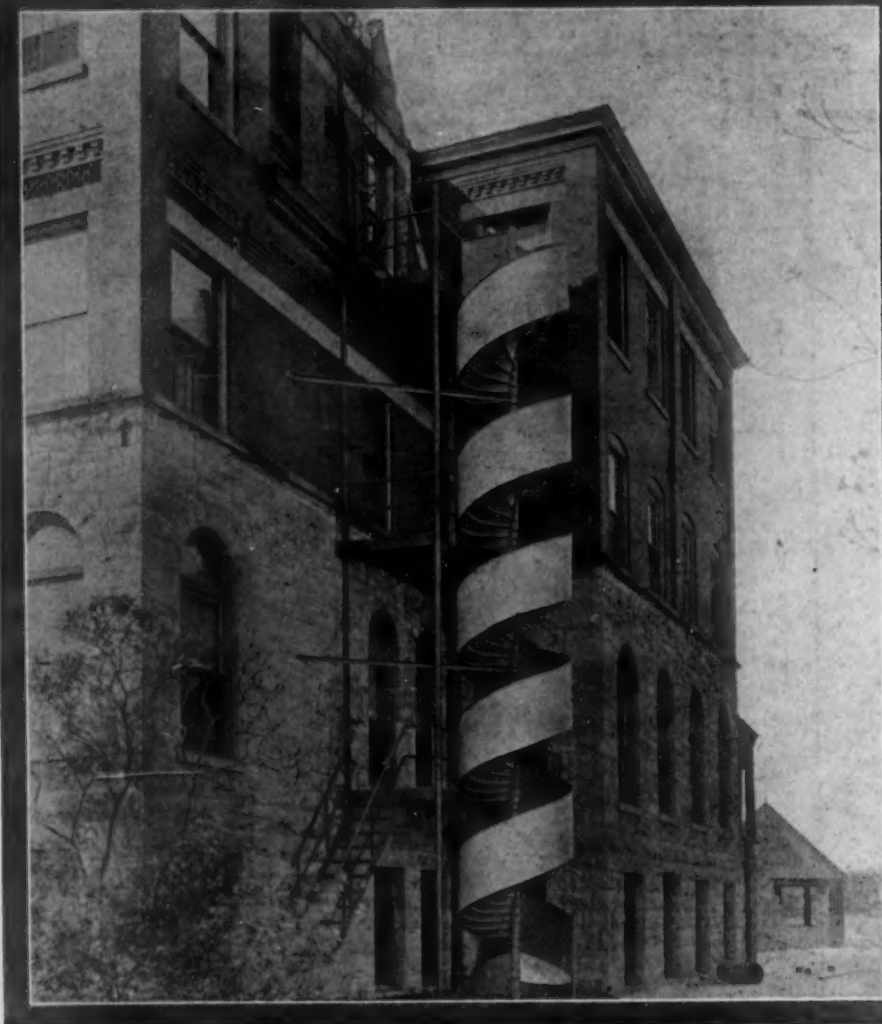
A pedestal fixture of cast iron, beautifully enameled and furnished with an extra heavy vitreous china bowl. Can be had with self-closing ball-bearing four-arm handle stop, or foot valve control.

Greatly reduced water pressure automatically puts these fountains out of use before they can become a menace to health.

Our new 76 page catalogue will
be gladly sent you on request.

Rundle-Spence Mfg. Co.

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If a Fire were Within a Few Feet of You Which Method Would You Choose?

IN an actual test between two children, the child on the stair escape could descend only ten steps in the time it took the child on the Standard Slide Fire Escape to reach ground and safety.

Two hundred pupils a minute is the capacity of this modern, non-crowding, **SAFE** fire escape.

Give the children a fair chance. Write for complete information today.

STANDARD CONVEYOR COMPANY

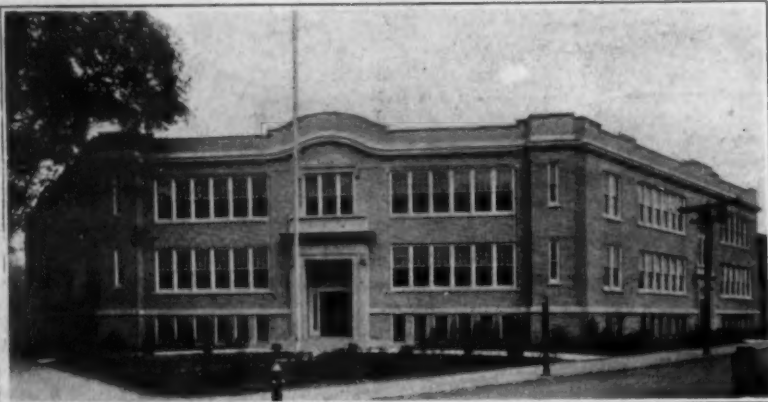
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Rice School, Stamford, Conn. Emmons & Abbott, Architects, Stamford, Conn.

Six reasons for adopting the Peerless Unit System of Heating and Ventilating for your school building:

1. Positive ventilation. Ample volume, correct temperature and proper distribution.
2. Simplicity. Saves space, first cost and operating expenses.
3. Mechanical excellence. Pleasing appearance, and noiseless operation.
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5. Satisfactory installations. Several hundred buildings now equipped.
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437-439 WEST 16th STREET, NEW YORK CITY



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in addition to having the benefit of greater economy and efficiency in ventilation and the distribution of heat, are practically free from annoying breakdown troubles. The Riverside High School shown at the left above is one of the many modern school buildings so equipped.

THE BAYLEY PLEXIFORM FAN

furnishes ventilation and moving air for the distribution of heat at a minimum power and space requirement.

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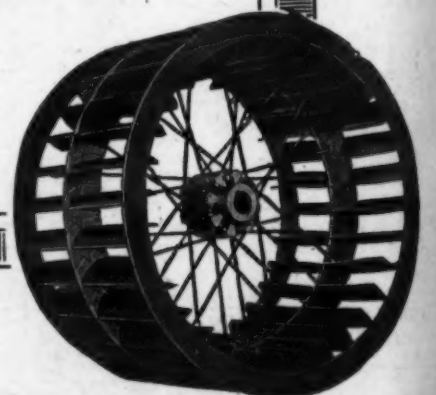
A "tube within a tube radiator" free from return bends, elbows and nipples, that can be altered, increased, decreased or repaired without disturbing the entire installation. It can be shipped K. D. to save freight.

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have made a life study of sanitary heating and ventilation. Their services are yours for the asking.

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THE TRUTH ABOUT DRINKING FOUNTAINS



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Vertical Stream Bubbler
Condemned Everywhere

UNSAFE
Camouflaged
Vertical Stream

IMPRACTICAL
Rainbow stream Hose-like.
difficult to drink from.

No. 1 shows the vertical stream which permits saliva and waste water from the drinker's mouth to fall back to the source of supply. No longer considered sanitary.

No. 2 is a slight modification of vertical stream type. This slight angle is little if any improvement over No. 1.

No. 3 is more sanitary if properly used. However, stream is hose-like with no definite drinking point. Drinker places mouth as near water outlet as possible; result, *unsanitary* like No. 1 and 2.

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CANTONMENT
DRINKING
FOUNTAINS**

See that Puritan
Fountains are
specified for
Your Schools

THE HALSEY W. TAYLOR CO. Warren, Ohio
LARGEST Exclusive Manufacturers of Drinking Equipment

THE PERFECT DRINKING FOUNTAIN STREAM

is produced by the famous PURITAN Cantonment "2-stream projector." This stream producing device was designed for, approved and adopted by the Government during the war. Now recognized as superior by the largest interests and schools in the country.

Practical drinking mound is formed by mechanical means. An interference is set up in the stream which retards the movement of the water at the apex of the arc. This forms a localized drinking mound, while the formation of the stream makes it impractical to drink from any other point.



"Cantonment
2-Stream Projector"

(Concluded from Page 102)

—The United States Department of Agriculture has recently issued a set of eight food charts on food selection and meal planning for the benefit of teachers of nutrition.

The charts form a comprehensive and useful guide to a wise and correct diet. One chart gives an explanation of the five food groups and tells why each is needed. To facilitate the choice of foods according to the nutrients they contain, a chart is given to show a great many common articles of diet, the unit of measure and the number of hundred calorie portions contained in the unit of measure.

The charts will be found useful in connection with dietetic courses in colleges, high schools, or parent-teacher associations, or wherever a study of nutrition is being made. The charts are clearly printed on heavy paper 24 inches by 18 inches in size and can be obtained from the Superintendent of Documents, Washington, D. C., for the small price of fifty cents.

—Wilkesburg, Pa. An open air school has been established under the direction of the Tuberculosis League. The league furnishes the nurse, the beds and clothing, while the school district supplies the teacher and classroom space. The number of pupils in attendance has greatly increased this year and the results have been encouraging.

—York, Pa. The health work for the school year 1920-21 consisted of examinations of children for physical defects, notification of parents of marked remediable trouble, followup work by the school nurses, and the control of contagion and dental dispensary work. Much of the time of the school nurses and physicians was occupied in combatting a diphtheria epidemic. To keep the schools free from infection sources, the following routine was adopted:

1. In case of quarantine, a child was required to have two successive negative cultures from nose and throat before readmission to school.

2. In school, all children with excoriating nasal discharge, or sore throat, or history of sore throat, were cultured to see that no germs were present in the nose or throat. If the culture showed diphtheria germs, the child was excluded from school until the successive cultures showed no germs.

3. Inspection of children was made in all

buildings attended by children who developed diphtheria. Necessary cultures were taken.

4. Fumigation was carried out according to municipal requirements.

The methods adopted proved practical and were convincing in results. Close cooperation with the municipal health authorities was maintained.

—The Junior Red Cross has recently established a fund of \$5,000 to aid parents in providing suitable eye glasses for their children. The fund is self-sustaining and the children pay back the cost of the glasses on the installment plan. The fund was established in view of the fact that fully 25,000 children in New York City are in the retarded classes because they cannot purchase the proper glasses. They fail to take full advantage of classwork because they are unable to see properly.

—The Eyesight Conservation Council of America has issued a small pamphlet with the aim of arousing national interest to a due appreciation of eye care. The Council points especially to the need of testing the sight of school children. Children with marked errors of vision will not see clearly and therefore lose much valuable time and effort in school work.

The council has compiled special charts and figures showing the principal vision defects and pointing out the need of remedy by the aid of glasses.

HIGH SCHOOL ADMINISTRATION.

—Westerville, O. American Speech Week was observed in the high school recently. Each student making a mistake in English wore a tag bearing the offending word or expression. For each violation, an assessment of one cent was made. The amount realized from this source reached \$6, which went into a magazine fund for the library.

A feature of the plan was the hanging of posters with effective illustrations of objectionable English in halls, classrooms and available places of prominence. Other features consisted of spelling and pronouncing contests, charades, and adapted compositions. A part of the armistice day program was devoted to a play by the seventh grade called G's Hardships.

—Ambridge, Pa. The high school day has been lengthened, making eight full periods of forty minutes each. The course of study has been

revised and extended, with special emphasis on commercial, scientific and vocational subjects.

—East Liverpool, O. The board has inaugurated half-day sessions in the high school as a matter of economy in overcoming the lack of accommodations. Freshmen and seniors are in session from 8:15 to 12:15 o'clock, while sophomores and juniors report from 1:00 to 5:00 o'clock. The plan enables students to carry full work, while those who desire, may attend half the day and engage in some occupation the remainder of the time.

—Marshfield, Wis. The high school enrollment has increased from 196 in 1916 to 625 the present year.

The junior high school is divided into twelve groups of students. Each group has its own officers, faculty adviser, name and room. Such typical names as Roosevelt, Carnegie and Purdy have been adopted. The several groups meet once a week for half hour to study ways and means of improving school life. Recently the groups through united action held a picture exhibit and purchased over \$100 worth of pictures for the building.

The groups are interested in the prize trophies which are offered for the best attendance record. The group maintaining the best record will be given a cup, while similar cups will also be given for the best scholarship and citizenship records. The trophies remain in the home room of the winners.

Recently a novel plan has been attempted for eliminating tardiness. An old dingy alarm clock is given to the group having the greatest amount of tardiness for a two-week period. A group given this clock must keep it in the room until the next award is made. The students accept it as a disgrace and make it pretty unpleasant for the offenders who are responsible for the tardy marks.

—North Platte, Neb. The senior high school has increased 90 per cent in three years, while the Junior High School has experienced a growth of 60 per cent. Ten teachers have been added to the faculty to take care of the increase of students.

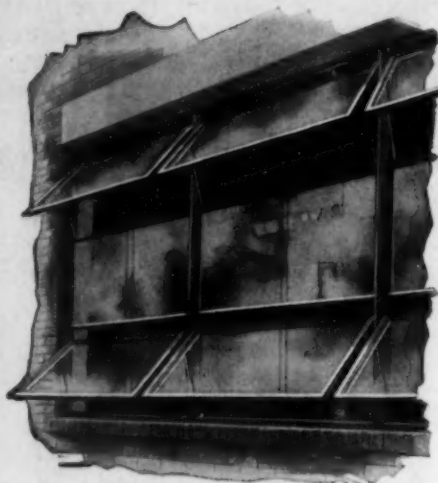
—Allentown, Pa. The junior high schools enrolling over 1,500 pupils are regularly classified in various groups according to mental tests given at the close of each term. An interesting ex-

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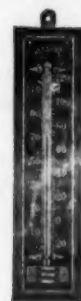
A WILDER Thermometer should be part of the standard equipment of every class room. Maintain a temperature of 68° Fahrenheit.

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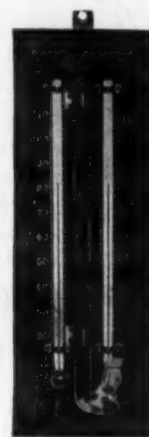
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No. 1582, Golden Oak
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No. 1410



No. 1582



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periment is being carried on by way of recording the number of pupils of lower intelligence quotient who may stand in the group of pupils of a higher intelligence quotient. This condition occurs through the fact that frequently pupils of a lower mental ability put forth more effort and concentrate more easily than do a large number of pupils of higher mental ability.

A school for pupils of superior intelligence has been opened in line with the policy of operating a school for subnormal children. The children were selected on the basis of tests conducted at the close of the school term last June.

In the way of experiment, it is planned to operate a school for a special group of children who do not stand so high according to mental tests, but who have a general high average in classroom work through unusual effort and application. The results of the work will be watched with interest and comparisons of the work of each school will be made at the close of the school year.

—Navasota, Tex. The high school claims the distinction of having one of the finest school libraries within the Lone Star State. The library contains more than five thousand volumes, all of which are for general school use. A librarian is employed to look after the receipt and distribution of books.

—Frederick, Okla. The English department of the high school recently observed "good English" week. The week was devoted to chapel talks, programs and plays representing the downfall of bad English. Posters were hung in halls and classrooms and special attention was given to the conversational English of students and faculty.

—Colfax, Wash. Colfax, a city of 3,500 population, has three school buildings comprising a high school and community structure and two grade buildings. The high school which was erected at a cost of \$140,000, has been improved this year with the addition of courses in music and physical education.

—Fremont, O. A complete high school education and opportunity to earn pin money is offered to pupils of the schools. The three-three shift plan has been inaugurated with successful results. The junior high school is in session daily

from 7:30 to 12:15 while the senior high school has sessions from 12:00 to 5:00 o'clock. The same amount of work is covered under this plan as under the old scheme and pupils are able to work one-half day.

—Anaconda, Mont. In the face of local business depression, the high school enrollment has increased 25 per cent over that of 1920, and is nearly 29 per cent of the entire enrollment of the school system.

—Macon, Mo. A work day was recently observed by the students of the high school. This day is an annual event. Students earn money to pay deficits on activities which are not of a self-supporting character. The total amount earned on the last work day was \$400.

—Norman, Okla. The school authorities announce that every pupil graduated from the eighth grade and living in the city has been enrolled in the high school. Of the 61 members of the last year's senior class, all but sixteen are attending the state university. Of these, seven are teaching and one is at home on account of illness. A few attend college elsewhere.

—Tama, Ia. The high school students issue a school paper. Both the editorial work and the printing are done by the pupils. Economy of labor is made possible with the aid of a multi-graph.

—Minneapolis, Minn. The board has adopted a probation rule to govern high school repeaters. The rule provides that any pupil 16 years of age who is enrolled in the high school and who does not pass in at least three subjects, during any quarter, shall be placed on probation at the beginning of the following quarter.

Failure to maintain a passing grade in three subjects during the probation quarter will cause him to be dropped from school at the midquarter report time, or at the close of the quarter, provide the parent or guardian has been duly warned.

The time of dropping a pupil is left to the discretion of the principal. A pupil dropped from school on account of poor work may not be reinstated until one quarter has elapsed after the close of the quarter in which he was dropped. A student who is dropped during the spring

quarter may be reinstated in September on a four weeks' probation. Exception to the rule is made in the case of continued illness or disability.

—Somerville, Tex. The high school which three years ago had no affiliation, now has thirteen units with splendid prospects for eighteen at the close of the present school year. The improved standing of the school is attributed to the board's judgment in selecting the proper teachers.

PUBLICATIONS RECEIVED.

Non-Competitive Historical Program Supplementary to the Prize Competition in American History. Bulletin No. 3, Knights of Columbus Historical Commission, Knights of Columbus Bldg., Boston, Mass. The booklet has been issued as a guide to contestants in preparing for the competition. It seeks to encourage investigation into the origins, the achievements and the problems of the United States, and to interpret the principles of liberty, popular sovereignty and government by consent. It also outlines the conditions concerning the submission of manuscripts.

Physical Standards for Working Children. Prepared with the cooperation and under the supervision of Dr. George P. Barth, Director of School Hygiene, Milwaukee, Wis., who also acted as chairman of the special committee. Publication No. 79, 1921, Children's Bureau, U. S. Department of Labor, Washington. The pamphlet is in the form of a preliminary report of the special committee appointed by the Bureau to formulate standards of normal development and sound health for the use of physicians in examining children for employment certificates. In all, eleven physicians composed the membership of the committee, which was in charge of Dr. George P. Barth, chairman. The pamphlet discusses standards of administration, minimum standards for physical fitness, methods employed in physical examinations, use of records in making examinations, and includes a summary of laws relating to physical requirements for employment in the several states of the Union.

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Schools and School Districts.

Though the county superintendent was guilty of misconduct in electioneering to induce electors to vote to establish a consolidated district under the Kansas Sess. Laws of 1911, c. 275, it is held that the election which provided for such consolidation was not thereby rendered invalid.—State v. Posey, 200 P. 288, Kans.

School District Government.

Under the Missouri revised statutes of 1909, § 11073, a certificate of the board of regents of a state normal school, also signed by state superintendent of public schools, authorizing persons to whom issued to teach the branches therein named in the public schools of the state for a specified period, is held a "state certificate" authorizing such person to teach, within section 10929, as amended by the Missouri laws of 1911, p. 404, making holder of such "state certificate" qualified to hold the office of county superintendent of schools.—State ex inf. Chinn ex rel. Botts v. Hollowell, 233 S. W. 405, Mo.

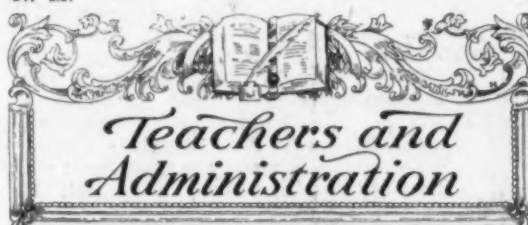
School District Property.

The rule of immunity of governmental officers exercising governmental functions does not apply where such officers have charge of the maintenance, repair, etc., of structures of which they are in charge, and, as the board of education of Albany, under the New York Education Law, §§ 300, 868, 875, is charged with school property and with the duty to purchase, repair, remodel, etc., a pupil injured by neglect in the condition in which school premises were maintained might sue the board therefor.—Jaked v. Board of Education of City of Albany, 189 N. Y. S. 697, N. Y. S.

Teachers.

The power to hire a school teacher presupposes the right to dismiss her.—Tadlock v. School Dist. No. 29 of Guadalupe County, 199 P. 1007, N. M.

In the absence of statute, there exists in the employing agency an implied right to dismiss a teacher for adequate cause.—Tadlock v. School Dist. No. 29 of Guadalupe County, 199 P. 1007, N. M.



"I don't want teachers to be frumps", says Mrs. Mary E. Cutting member of the Bridgeport, Conn., school board. "I don't want them to look like the schoolmarm of the caricatures. But, I do object to rouge, powder, lip stick and the blackening of the eye brows. A teacher should look her part, should be so dressed, and of such appearance that she can command the respect of her pupils."

A petition asking that the salary of night school teachers be raised from \$2.50 per night to \$4.00 was denied by the Lawrence, Mass., school board. In the rural districts of Vermont the teachers now average salaries from \$18 to \$20; in cities and villages from \$20 to \$30 per week.

Dr. Frank E. Spaulding of Yale University recently said that the lifting of the profession to a higher level would be sure to react in higher salaries within three years. He declared that the constant identification of teachers as a whole with the objectives of increased pay, longer tenures and pension, and with these objectives only, had been unfortunate in that it had diverted and exhausted the united efforts that should have been given to making the profession a better instrument of public service.

At Asheville, N. C., the Kiwanis Club provided a "Teachers' Night" dinner recently with the result that the teachers themselves have concluded to meet at least once a year in social gathering.

"Strip city councils of their last remnant of control over school boards" is the battle cry of the New York State Teachers' Association. The complete moneyed independence of school boards

is demanded.

Canton, Miss. A teachers' home was recently purchased for the use of a school in Madison County. A second school district has secured a fund for the purchase of a home. A total of four school districts have teacherages for the use of their instructors. Teachers' salaries have been increased about 35 per cent within a period of two years. The number of teachers has been increased 33 per cent by reason of the increased tax levies.

Anaconda, Mont. The local Rotary Club recently tendered a banquet to the teachers of the city. Following the banquet, the members of the club listened to talks from the teachers. Each teacher told something about her work and gave a summary of the leading features of present-day education in the schools.

In October the several classes in the schools were tested in reading and arithmetic on the basis of the standard tests for these subjects. The results of the tests proved quite encouraging to the teachers.

Center, Texas. On Thanksgiving evening an hour of good fellowship was spent by the teachers at the Polley Hotel, as the guests of the board of education. The guests were treated to a dinner with the remainder of the evening devoted to a social good time. The purpose of the board was to provide the means of getting better acquainted and establishing a better understanding between the teachers and the board.

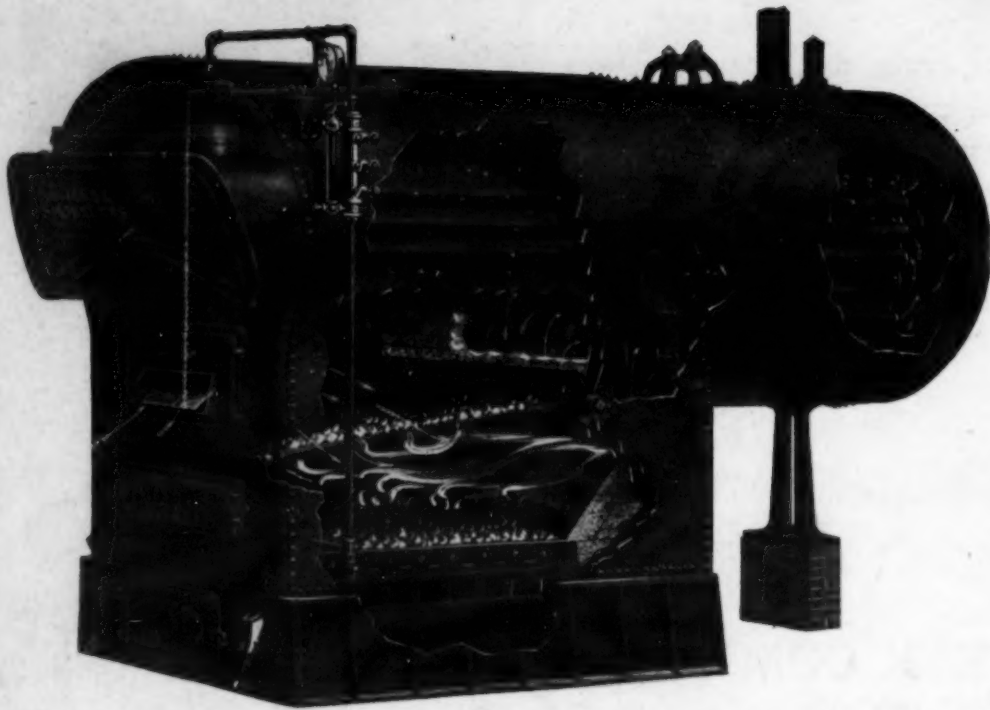
For the third consecutive year, the school teachers of Elyria, Ohio, have made a record of one hundred per cent enrollment in the North-eastern Ohio Teachers' Association and the National Education Association. The record is indicative of the spirit of the teaching corps.

A joint county-city normal school was opened at Elyria this fall with an initial enrollment of 35 students. The work is in charge of a special director, assisted by instructors in music, art, penmanship and physical training.

St. Joseph, Mo. Demonstration classes for younger teachers are being taught on alternate Saturdays by the leading teachers of the schools.

Under the plan, the teacher conducting the demonstration has her pupils report on Saturday the same as on regular school days. The teacher conducts the class in the same manner as on

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school days and makes the same preparation for her work. The success of the plan is evidenced by the increasing interest shown by the inexperienced teachers, as well as by those more experienced in teaching methods. Thus far, four demonstrations have been held and the number of teachers present has reached 54.

The teachers who give the demonstrations do so voluntarily as it is considered an honor to be selected for the work. The children also willingly report for classes since they understand it is an honor to help in the work.

—Herkimer, N. Y. Several teachers from the school force are improving their teaching efficiency through extension work at Chicago University.

—Duluth, Minn. A committee of teachers comprising three principals and two supervisors has been appointed to work out a system of rating teachers and fixing their salaries on the basis of merit.

—The Southeastern division of the North Dakota Teachers' Association will hold its annual two-day session during the last week of March. The association has a membership of five hundred. Supt. H. H. Kirk, of Casselton, is president and Miss Blanche Stevens, Ellendale, is secretary.

—A joint conference of the teachers of the two supervisory districts of Montgomery County, New York, was held at Fort Plain, N. Y., on Friday, November 4, 1921. The conference was inspirational as well as educational in character and represented the nearest approach to the old-fashioned teachers' institute ever held in the county. Pres. H. N. Holmes of Canajoharie, together with Dist. Supt. N. B. Alter of the First District and George F. Bowman of the Second District, were in charge of the program.

—Menasha, Wis. The school board has successfully attacked the problem of providing better living accommodations for teachers in the schools. A large dwelling has been purchased on a land contract for the accommodation of a part of the teaching corps. The teachers have the freedom of the place and are happily located. Eleven teachers live in the home.

—Medina, N. Y. Twenty of the 42 teachers attended summer school during the past summer. The teachers received \$60 and tuition for attend-

ance at the school.

—Northampton, Pa. The elementary and high school teachers, at their monthly conferences, have taken up a study of the content of the curriculum. The work began with a survey in September, which sought to determine what young people do after they leave the elementary or the high school. It was agreed in conference that, if the schools would rightly serve the community, they must teach children to do better those desirable things they will do after they leave school. With this idea in mind, a study of the present curriculum and the need for it was made. The work has been found interesting and stimulating and has already resulted in vitalizing the content and method of teaching.

—Supt. M. E. Townsend of Boonton, N. J., is offering to his teachers a special "Seminar Course in Practical School Questions" in which about eighty per cent of the teaching force is enrolled. Problems of vital importance are discussed at meetings which the teachers attend weekly. The course is entirely voluntary.

—Bellingham, Wash. At the suggestion of Supt. D. E. Wiedman, the board of education has recently adopted rules to govern the educational qualifications and professional advancement of the teaching corps. Teachers must attend summer school in order to maintain their position on the salary schedule. Grade teachers must possess the equivalent of a normal school diploma, while high school teachers must present evidence of a college or university education. Married women with supporting husbands may not be employed.

—Renton, Wash. The 52 weeks of service of teachers has been divided as follows: Forty weeks of teaching; six weeks attendance at a summer school or approved educational work, and six weeks of vacation. The minimum requirements for election to a position in the schools are: For the grades, two years of training above the high school and two years of experience; for the high school, college or university training and two years of experience; for the seventh and eighth grades, more than two years of training are advisable.

—Paterson, N. J. The board has adopted a new salary schedule. Teachers in the elementary grades will begin at a minimum salary of

\$1,200 and will advance to \$2,500 in eleven years.

High school teachers will begin at a minimum of \$2,000 and will advance to \$3,600 in nine years.

Principals of primary schools will begin at a minimum of \$2,800 and will advance to \$3,800 in six years. Principals of grammar schools will begin at a minimum of \$3,000 and will advance to \$4,600 in nine years. The principal of the high school will begin at a minimum of \$5,000 and will advance to \$5,800 in five years.

—Secaucus, N. J. The board has adopted a salary schedule providing for a minimum of \$1,200 for teachers without experience. Annual increases of \$100 will be provided up to a maximum of \$2,300 for the first six grades and \$2,500 for the seventh and eighth grades.

Each teacher is allowed ten days' sick leave during the year. In addition one day is allowed for visiting purposes and additional days for marriages or deaths in the family, quarantine, and summons to court.

—Ashland, Ky. The salary of the high school principal has been raised from \$2,100 to \$3,500. Substantial increases in salary have also been granted to the high school instructors.

—Longview, Tex. High school teachers' salaries have been increased thirty-three and one-third per cent the present year. Teachers in the high school must possess college degrees.

Ninety per cent of the high school teachers attended the meeting of the state teachers' association held in November, at Dallas. Three of the members of the high school faculty have been employed as instructors in normals and university summer sessions for 1922.

—Athens, O. The board raised the salaries of teachers fifty per cent last year, and a further increase of 8.5 per cent was added this year. A new regulation requires that normal school graduates shall be employed in the grades, and college graduates in the high school. The minimum salary is \$1,050 for the grades and \$1,350 for the high school.

—A fight is being waged in Idaho over the provisions of a new teachers' retirement law. Supt. J. L. Breckenridge of Sandpoint, who led the fight against the law at the recent North Idaho Teachers' Convention, pointed out the objections and showed that the payment of one-half of one

(Concluded on Page 113)

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(Concluded on Page 110)

per cent of a teacher's salary is not adequate for a pension of \$700. The law does not provide for a state contribution or for back payments. The first ones to participate in the pension plan will be the only ones to profit by the law.

—James D. Sullivan of the New York State Department of education recently told the teachers that they had been exceedingly active on the heads of the legislature to secure greater salaries, but he had not heard of any teacher proposing to teach longer hours or do more work.

—Philadelphia, Pa. Plans have recently been perfected for the organization of a teachers' council. A committee appointed by the teachers from among their own number has been engaged since the opening of schools preparing a constitution. The formation of a central organization which will satisfy all groups and factions is necessarily slow but it is expected that the council will be in full operation before the first of January.

—More than \$145,000 of school bonds have been purchased by the teachers of Kansas during the year 1921, according to Miss Lillian Scott, the originator of the plan, "School bonds for school teachers."

—Five hundred teachers of Toronto, Canada, in November made a survey of the schools of Buffalo, N. Y. Instead of having the usual institute in the Canadian city, the teachers were taken to Buffalo, and each visiting teacher had an assignment as to school and grade. Special demonstrations and addresses by Buffalo educators featured the two-day inspection trip.

—Seattle, Wash. The board has recently called attention to its attitude in the assignment of warrants by employees. It is considered bad policy for employees to assign warrants, it being not in keeping with the interests of the schools or of the teachers. It points out that while it may recognize an assignment after it is made, it is not obliged to retain the services of teachers who follow such a course in the face of the board's disapproval.

—Bend, Ore. The minimum salary schedule remains unchanged from last year, with \$1,200 for elementary teachers, \$1,350 for junior high schools and \$1,500 for senior high schools.

—Carthage, Mo. The salaries of teachers have been more than doubled during the past four years, and the standards governing teachers have been increased accordingly.

COMMITTEE ON STANDARDIZING SCHOOL PLANNING.

The Committee on the Standardization of Schoolhouse Planning and Construction of the National Education Association has developed its study of space analysis of departments to a point where tabulations and graphs will shortly be made of the educational and architectural features of buildings. When this work is completed, the committee expects to publish a report. During the year 1920 and a part of 1921, the committee devoted considerable effort in the direction of studying schools from the standpoint of safety to life.

A new member has been added to the committee in the person of Mr. Dwight H. Perkins, Architect, of the firm of Perkins, Fellows & Hamilton of Chicago. Mr. Perkins has had an extended experience in schoolhouse planning and has been interested in the work of the committee from its beginning.

SCHOOL BUILDING NEWS

—Huron, S. D. The new McKinley School in course of construction at the present time is an eight-room building of the fireproof type. It will be completed in September next, at a cost of about \$70,000.

—Secaucus, N. J. The enrollment of the schools is the largest in the history of the school system. The board plans the erection of a new school next year.

—Ironwood, Mich. Under a new law, the schools of Ironwood in July last, were given additional powers in the matter of issuing school bonds. This was done to hasten the building of schools to meet overcrowded conditions.

A modern twenty-room, fireproof grade school will be erected at a cost of \$300,000. Next summer the board plans to erect a new junior-senior high school to provide accommodations for twelve to fifteen hundred students, at an estimated cost of three-quarters of a million dollars.

—Portsmouth, Va. The school board has obtained a bond issue of \$260,000 for the building of a sixteen-room addition to the present high school, a twelve-room addition to an elementary school and a four-room addition to a colored school. The high school building was only completed two years ago.

—Welch, W. Va. A large building for the Junior High School and grades is under construction and will be completed for use in March, 1922.

—Canton, O. Five new buildings have been occupied this year. These include the McKinley and Lehman High Schools and the McGregor, Beldon and Horace Mann Schools. With the opening of the schools in January, 1922, it is expected that the pupils will be on a full day schedule for the first time in a dozen years. The building program for the past three years has amounted to over four million dollars.

—Allentown, Pa. Through an expenditure of \$500,000, two old-type school buildings have been completely remodeled and made into 21 and 23-room buildings. The board has received bids for the erection of additions to two schools, one to be a sixteen-room addition with gymnasium, and the other an eight-room addition with gymnasium and library facilities.

—Haverhill, N. H. The old Grafton County Court House at Haverhill Corner, for nearly one hundred years in use as the home of the Superior Court of the County, has been purchased by the alumni of Haverhill Academy. The alumni and the school district have repaired the structure and turned it over to the academy as an alumni hall and gymnasium. The building is of brick and granite, of colonial architecture, and in spite of its age, stands in perfect condition, an example of the lasting workmanship of a century ago.

—Greenville, O. A bond issue has been voted to complete an addition to the present high school, providing a million dollar school plant.

—Cambridge, O. A bond issue of \$250,000 was voted to erect a number of elementary schools and additions.

—Marion, O. The schools opened in September with four new buildings and 24 additional teachers.

—Springfield, O. A new school has been completed at a cost of \$147,000.

—Columbus, O. Plans have been approved for a new Central High School.

—Venice, O. A new six-room grade school has been erected.

—Lorain, O. The Longfellow Junior High School was occupied in October.



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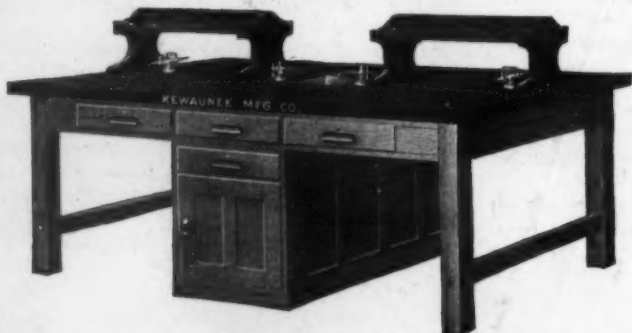
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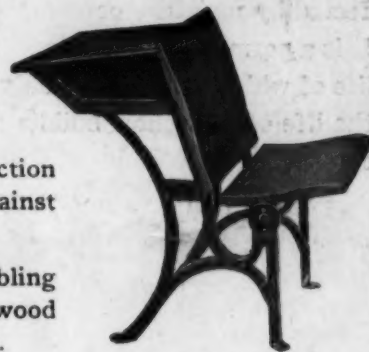


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DETERMINATION OF SPELLING VOCABULARY.

A Study Based on Written Correspondence.

The beginning of a long series of studies in the selection of words to be taught may be said to be due to a pioneer in this field, Dr. J. M. Rice, who presented the results of his work in a paper on "The Futility of the Spelling Grind." With the idea of carrying these studies still farther, Mr. William N. Andersen, of the University of Iowa, has recently made an attempt to determine a spelling vocabulary. In connection with his study, Mr. Andersen offers a critical review of the work of a number of authors who have been working along the same line.

Mr. Andersen starts out with a study made in 1904, by Rev. J. Knowles of London, who published a pamphlet entitled "London Point-System of Reading for the Blind." The investigator took passages from the Bible and from various authors and made a list of 353 words which occurred most frequently.

This is followed by a study made by R. C. Eldredge of Niagara Falls, N. Y., who made a study of the vocabularies of 250 different articles taken from two pages of four Sunday newspapers.

In a study made by Dr. L. P. Ayres in 1913, the first word of every line of 2,000 short letters written by 2,000 persons was tabulated. The total of different words was found to be 2,001.

The study of Mr. W. F. Jones contained material gained from the writing vocabularies of 1,050 grade students. The total number of different words was estimated at 4,532.

The study of W. A. Cook and M. V. O'Shea in 1914, covered tabulations of 200,000 words taken from the family correspondence of thirteen adults. While 200,000 words were tabulated, the total number of different words used was only 5,230. Of these, 1,804 words were used only once.

During 1912-13 a special study of spelling was made by the teachers and grade supervisors of Johnstown, Pa. The results which were published in 1913 in a monograph on "The Teaching of Spelling", gave a list of 4,032 words selected from each grade in the several subjects of the classroom.

The teachers from the 70 elementary districts of Boston prepared a list of words from those most often misspelled by pupils in written work. The words recorded by the teachers were combined into a complete list for each grade reaching a total of 15,223 words, with 5,231 different words. Final supplemental lists contained 840 and 2,542 words, as reported by one teacher and two or more teachers respectively.

Miss Effie McFadden and Dr. Frederick Burk of the San Francisco State Normal, prepared a list comprising all the words used two, or more times, in 91 letters. In this study 6,919 different words were found in a total of 19,288 running words. Of this number, only 840 were used more than once.

Another study published in 1914 was that of C. K. Studley and Allison Ware of the Chico (Cal.) Normal School. They prepared a list of 3,470 words which was a compilation of words from Ayres, from McFadden and Burk, and from 920 compositions written by the children of the Chico district. In all, some 200,000 words were inspected, and from a total of 3,459 different words, a final list of 2,088 was prepared.

Leonard P. Ayres in his Measuring Scale, published by the Sage Foundation in 1915, compiled a list of 1,000 words occurring most frequently in the four works of these authors: Ayres' Vocabularies of Personal and Business Letters; Cook & O'Shea's Study of Personal Letters; Eldredge's Six Thousand Common English Words; Knowles' London Point-System of Reading. The list of 1,000 words finally selected was determined by finding the frequency with which each word appeared in the tabulations of each study, weighing the frequency, adding the four frequencies thus obtained, and finding the average.

In 1915 a list of 2,040 words was prepared by E. E. Lewis of the College of Education, University of Iowa. The list was prepared for special use in the high school normal training courses and was made the basis of the normal training examination in orthography. One hundred words were selected from the list at each examination and the grade was determined from the results of the examination. The words were selected word lists by Knowles, Eldredge, Ayres, Cook and O'Shea.

Homer J. Smith of the Milwaukee School of Trades, compiled three lists from a total of 1,138 words. The words were chosen from 75,000 running words found in themes of the elementary pupils of Madison and the first list contained 272 words used by pupils in all grades.

A list of words compiled by the Emporium Department Store at San Francisco, was obtained from an analysis of 400 letters. These letters contained a total of 10,834 words, and of this number, 1,576 were found to be different words.

An extensive study and compilation of a "minimal" spelling list has been made during the past few years by Hugh Clark Pryor of the University of Colorado. The words were taken from the tests and word lists of Jones, Studley and Ware, Woolfolk, Johnstown, Pa., Boston, Mass., Ayres, Hicks, Chancellor, Cook and O'Shea, and Eldredge. A final list of 1,309 words was obtained, which was later increased to 1,478 words.

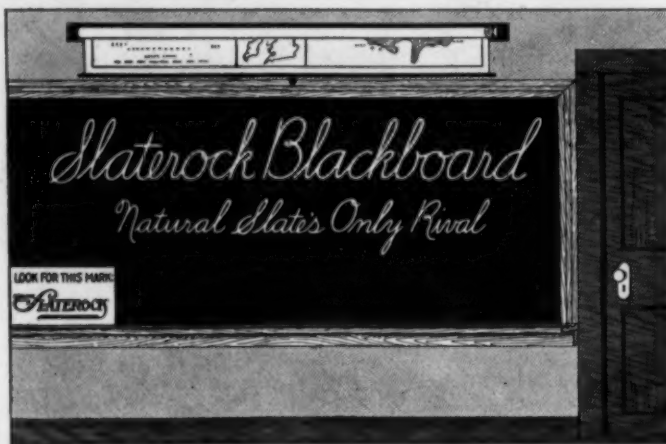
The study made by Mr. Andersen has for its purpose (1) an expansion of the work performed in the various earlier studies, (2) a comparative study of words common in the writing vocabularies of persons in various callings, (3) an idea of the extent and range of vocabularies used by persons in certain different callings, and (4) ascertaining the educational significance of the findings.

A total of 3,723 letters, written by adults in over 35 different occupations and callings in the state of Iowa, were collected by the school children in the seventh, eighth and ninth grades of 22 towns and cities. From these letters word-lists were made by the pupils according to directions sent out by Mr. Anderson. Letters were also sent to teachers and superintendents giving directions for the work.

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MANUFACTURERS—SCHOOL EQUIPMENT AND SUPPLIES

In studying the words used in nine different groups of callings, a table was prepared showing the number of letters analyzed, the total number of running words, number of different words, and number of words occurring once only. In this table the "business" letters do not include any letters from bankers or from automobile dealers. No doctors' letters are included in the professional group.

Another table on classification of correspondence included letters written by automobile dealers and bankers in the general group of business letters, and those written by doctors, in the professional group. This table covers six different callings and shows the number of letters analyzed, the total number of running words and the number of different words.

In the same table it is shown that in the general groups, the miscellaneous list contains the greatest number of different words, 5,681. The professional group including the doctors' letters, is second with 5,368 different words, and the business group including the bankers' and automobile dealers' letters, is third with 4,105 words. In the special groups, in another table, the doctors' list is first in number of different words, the personal list second, and the bankers' third.

In an original tabulation into groups, the number of different words occurring in the first 700 letters was kept separately for each of the professional, business and domestic groups. The number of different words occurring in each of these respective groups was 4,848, 2,523 and 3,820. In these groups there were no doctors', bankers', or automobile dealers' letters. It is safe to say that the business correspondence analyzed, contained a smaller number of different words in an equal number of letters.

By tabulating the words separately in general and special groups, it was possible to show the number of words that were used exclusively in each of the respective special groups. The table covers five different callings and shows the total number of words used, the number occurring only once, the number occurring two times and the number occurring three times.

In a tabulation of the five special groups the

number of different words was recorded at approximately the end of the first 3,000 running words and at the end of approximately each additional 1,000. This method shows more definitely the difference in the range of words used by persons in (1) professional and skilled callings and trades (2) semi-professional and semi-skilled callings and trades, and (3) non-professional and non-skilled occupations. This shows comparatively for the different classes, the decreasing number of additional new words used in each succeeding block or unit of approximately 1,000 running words.

Another table shows the number of different words found in each of twelve additional successive units of running words that were used by five different groups of correspondents. The larger of the successive pairs of numbers represent the additional running words and the smaller, the additional new words. In counting the running words for the successive units in the different groups, all words in each of the letters were counted. The letters were then sorted and grouped so as to make as nearly as possible 1,000 words per unit. The total number of words occurring in the first three units were recorded collectively at the end of the third unit.

The 22 towns and cities from which the original data were obtained represent practically every part of the state. To gain some idea of the probable distribution of letters collected in any town or city, a list was made of the postoffice addresses from which 100 letters came. These letters were collected by a group of seventh-grade children of Iowa City. In the list of 100 letters were personal and friendship letters and letters from persons in each of the following professions and callings: Jewelers, bankers, manufacturers, farmers, housekeepers, school superintendents, college students, adjutant general, merchants and librarians.

A doubt may arise as to whether the final word list adequately represents the various callings and occupations, and the different educational levels throughout the country. Since the 3,723 letters have been collected from the parents and

friends of the seventh, eighth and ninth grade children of 22 towns and cities, it is reasonable to expect that the word list represents a sufficiently large number of occupations and callings, and a wide range of educational levels.

The findings reveal a total of 9,223 different words in 361,184 running words. The first fourteen words with their repetitions were found to constitute one-fourth of the total number of running words tabulated. Seventy-seven words with their repetitions comprised one-half of the total number of running words, and 442 words comprised three-fourths of the total number.

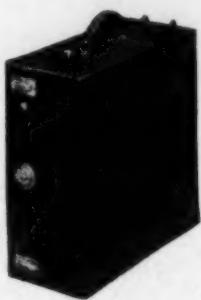
The final list was made up of words occurring in three or more of the six groups shown in the table, with a total frequency of five or more. A selection of 3,087 words was obtained by gathering all words occurring with a frequency of one in 116 running words, or about 862 words per 100,000 running words. The words as given in the table, are arranged in the descending order of their frequency of occurrence.

The purpose of the study has not been to catch the "last" common and familiar word in the tabulated list, but to show approximately the words commonly used. Contrary to opinion, the present study shows that there are at least 3,000 common and familiar words that any individual of average intelligence might have occasion to use in letter writing. Emphasis is placed on the fact that there is a growing conviction among educational leaders that fewer words should be taught in formal spelling lessons and that attention should be directed to spelling in connection with written work.

In the matter of spelling mistakes, it is shown that in the domestic correspondence 601 words were misspelled once each, while 66 words were misspelled from two to 22 times each. In the business correspondence 619 words were misspelled once, while 45 were misspelled from two to six times each. The professional group shows 408 words misspelled once and 26 misspelled from two to five times each. In the personal and farmers' correspondence 238 words were misspelled from two to 21 times each. Only 58 of

(Concluded on Page 123)

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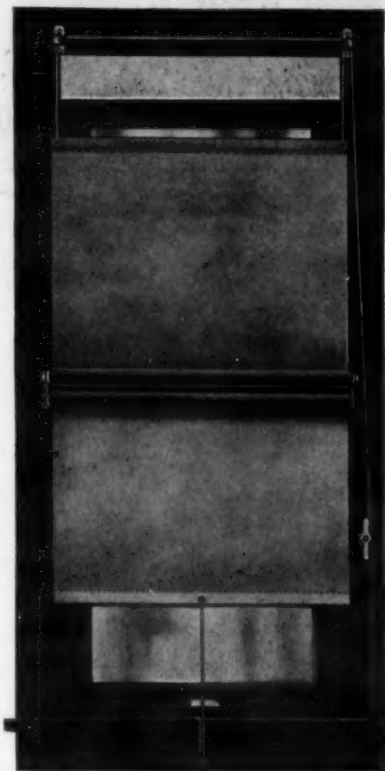
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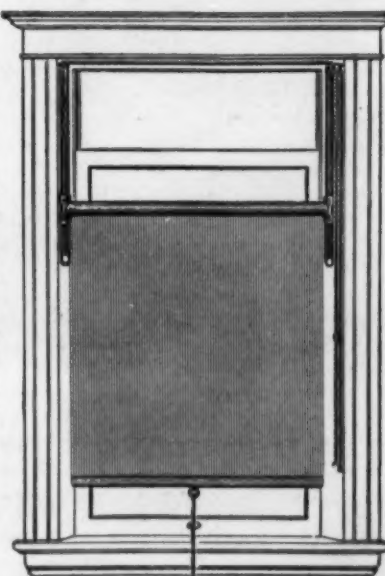
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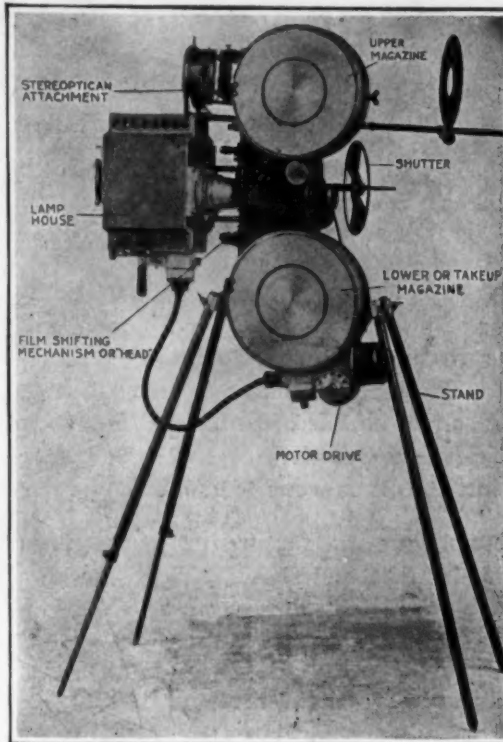


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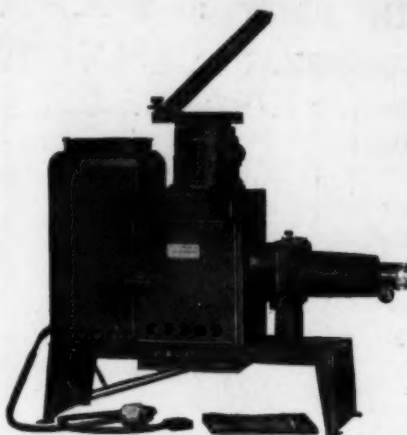
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By W. C. Coker and Eleanor Hoffmann. Paper cover, 60 pages. Published by the University of North Carolina, Chapel Hill, N. C.

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While the treatment is particularly applicable to a southern state the book would prove helpful in any section of the country when the beautifying of school grounds is contemplated.

Games and Play for School Morale.

Arranged by "Mel" Sheppard and Anna Vaughan. Paper, 48 pages. Price 25 cents. Published by Community Service, New York City.

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Publicity Campaigns for Better School Support.

By Carter Alexander and W. W. Theisen. Kraft Paper. viii and 164 pages. Illustrated. Price \$1.25. World Book Company, Yonkers-on-Hudson, N. Y.

This book tells how to stage a campaign for increased financial school support. The subject matter deals affirmatively with the advisability of engaging in any sort of propaganda work, outlines organization plan, the agencies that must be employed, the arguments to be advanced, and provide examples of publicity material.

Wherever it may be deemed necessary to make propaganda for the schools the book will prove of service.

What is Socialism?

By James Edward Le Rossignol. Cloth, 267 pages. Thomas Y. Crowell Co., New York, N. Y.

In view of the disastrous results which have followed the experiments made in carrying out the dreams of Karl Marx and other theorists in the direction of an utopia, this book is timely. It dissects socialism in all its phases, its creed, its interpretation of economic history, and the Marxian theory of class struggle. Fallacies are exposed and the illogic of the whole scheme laid bare.

Psychology for Normal Schools.

L. A. Averill. Cloth, octavo, 362 pages. Houghton, Mifflin Co., Boston.

This book has been written from the very practical standpoint of a psychologist who has had some years experience in training teachers and who has sought to make the subject a helpful tool for the young women who have gone out from his classes. The work is a child psychology and introduces the facts and theories of adult psychology only to make the reader acquainted with those bare essentials that provide a vocabulary and cannot be dispensed with. The child is presented in the three-fold aspect of his original equipment of instincts and capacities, the processes by which he learns and the differences that exist between children. The child's behavior is the approach to the study of his original equipment. There is in the book much material for further study, for observation, and for practical application.

It is hard to understand why the author has attributed to the religious doctrine of original sin, the old mistaken notion of personal guilt on the part of the individual and why he cites modern poets and novelists to support the contention of a doctrine of original perfection. Why not apply the more scientific attitude which shows the innate inclination to evil as well as good? The chapters on will and moral development are decidedly the weak section of the book and depart from common experience of life in favor of attractive theory.

New Laboratory Manual.

By Lewis Elhuff. Cloth 101 pages, illustrated. D. C. Heath & Co., Boston, New York, Chicago.

This is a project book for classes of junior high school students in general science. It has been especially arranged to furnish problems and to require apparatus which can be worked in the average classroom. The book can be used independently or in connection with a standard text.

Mon Petit Livre Francais.

By Clara S. Dolton. Cloth, 86 pages, illustrated. Price \$0.65. Longmans, Green & Co., New York, N. Y.

A series of French lessons for young children who have passed from the kindergarten. It presents as lessons the simple home and school relations of pupils in the grades.

Community Civics for City Schools.

By Arthur W. Dunn. Cloth, 582 pages, illustrated. D. C. Heath & Co., Boston, New York, Chicago.

A remarkable series of facts and events are compressed into this volume. They embrace every phase of community life from the humblest village to the largest city. The author carries the student into American urban activities and instructs and entertains from the standpoint of law, order and government.

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The illustrations deserve special mention. They are well chosen, in that they picture cities and hamlets, a wide range of occupations, industrial, commercial and educational; groups of men having the important affairs of the nation in hand. The tribute which the communities of today render to the pioneers and builders of the past is pictured in statues and memorial halls. The creations in architecture are well demonstrated.

On the whole, the purpose of the book is to introduce the student to the activities and achievement of his country. It serves that purpose in an excellent manner.

American History and Government.

By Matthew Page Andrews, M. A. Cloth, 528 pages, illustrated. J. B. Lippincott Co., Philadelphia, Chicago.

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Treasury of Flower Stories.

Inez N. McFee. Cloth, 12mo., 128 pages, illustrated. Price, 75 cents, net. T. Y. Crowell Co., New York, N. Y.

This "treasury" is in part mythology and folk lore of flowers in part, simple botanical facts told in story form. The book is charming in style and interestingly illustrated.

Practical Methods for Teaching Elementary Geography.

By William C. T. Adams. Cloth, 135 pages. Hinds, Hayden & Eldredge, Inc., New York, Philadelphia, Chicago.

This book contains a carefully formulated statement of the generally accepted present day purposes of geography teaching in the grades and outlines special methods, equipment and aids that teachers may employ. An excellent chapter is devoted to standard tests.

The Technique of Pageantry.

By Linwood Taft. Cloth, 168 pages. A. S. Barnes and Co., New York, N. Y.

The author deals with the various phases of pageantry presentation. After discussing the general technique he proceeds to organization, caste, rehearsals and performance. To illustrate types of pageant episodes, he introduces various historic episodes including a Pastoral Thanksgiving, Pax Romana, Crowning of the Dauphin of France, Columbus received at the Court of Spain, Federation of the World, etc. A series of actual programs is presented.

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By Kenneth Graham Duffield. Cloth, 62 pages, illustrated. Henry Altamus Company, Philadelphia.

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Pasteless Paper Construction.

By Miss S. E. E. Hammond, Springfield, Mass. Paper bound. 48 pages. Illustrated. Published by The Bruce Publishing Company, Milwaukee, Wisconsin.

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By Carl L. Svensen. Cloth, 214 pages, illustrated. Price \$2.25. D. Van Nostrand Co., New York.

This book presents machine drawing as a correlation between mechanical drawing and engineering and offers in the shape of informational definitions, discussions, tables, illustration, and drawing problems a practical introduction to college engineering courses. The work opens with a restatement of elementary principles of mechanical drawings and types of machinery fastenings. It then takes up very completely the special methods of machine drawing and dimensioning and in subsequent chapters treats machine details, bearings and pulleys, shafting and couplings, jigs and fixtures, cams and gears, piping, etc.

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Compiled by Charles A. Wagner, Superintendent of Schools, Chester, Pa. Published by The Bruce Publishing Company, Milwaukee, Wisconsin.

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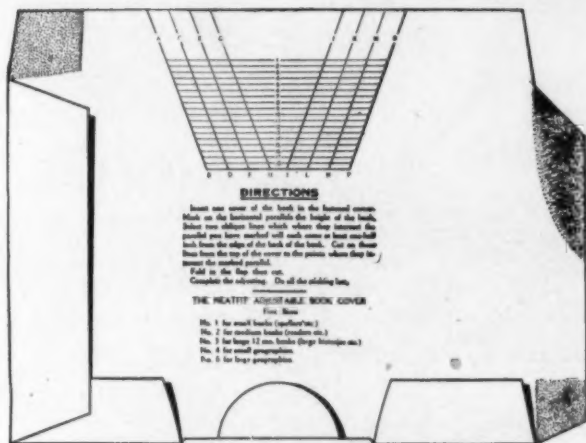
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ADMINISTRATION NOTES

—A total of 122,977 pupils in the public schools of New York City were on part time at the opening of the school year in September. The congestion was particularly acute in the high schools, which reported a total registration of 87,024, a gain of 13,420, and a daily average of 76,220, which exceeded last year's figures by 24,078. The elementary school attendance showed an increase of 145,006 over September, 1920, the total being 764,117.

—Minneapolis, Minn. The board plans to utilize the janitors as traffic policemen to protect children who have to cross busy streets.

—Louisville, Ky. The voters of Louisville and Jefferson County were overwhelmingly in favor of the adoption of two amendments to the state constitution providing for school reforms, although the amendments were decisively defeated as a whole in the state. The vote was especially heavy against the measure in the rural districts. The amendments provided that the state superintendent's office should be made appointive and that the method of distribution of state funds should be changed.

—At a recent educational conference of state officials of Pennsylvania, held at Harrisburg, definite plans were discussed for bringing about the passing of the old one-room rural school and the erection of modern schools. Dr. L. L. Driver, Chief of the Rural Education Bureau, explained the situation regarding rural schools. Mr. Hubert C. Elcher, of the Building Bureau of the State Department, pointed out that thousands of dollars are wasted because of the lack of logical building programs, and Mr. Harry B. Hostetter, of the Landscape Bureau, declared that the state should rid itself of the old-type rural schools and make the schools attractive to these children. Miss Hannah Kieffer, of the Shippensburg Normal School, discussed the rural school of the future.

—A recent study of age-grade progress in the New York City Schools shows the relative probability of a child just entering school reaching the 8B grade after completing fifteen terms or more. Only two out of every seven children who entered the schools seven and one-half years ago are in the biggest class. The others are scattered down through the grades to and including 4B.

The study shows that of the 72,811 children now in school, who entered seven and one-half years ago, only 21,483 are in the grade to which they should have advanced at the normal rate of progress. Four hundred and eighty of them are in 4B, representing only eight terms of progress during their fifteen or more terms in school. The remainder are distributed all through the grades in varying proportions.

Contrasting the conditions in a single class as disclosed in the age-grade progress reports, with the results in intelligence tests, some interesting facts are disclosed. In a class of 46 in a lower east side school, the 46 pupils range in chronological age from 8 years and 1 month to 15 years and five months. Their mental ages range from 7 years to 12 years and seven months. The class includes pupils retarded as many as six terms and some advanced as far as four.

—Atlanta, Ga. The finance committee of the board has ordered the erection of seven portable structures to relieve the congestion. The school authorities have experienced trouble in taking care of six thousand or more new pupils.

—Indianapolis, Ind. Half-day sessions will be reduced to such an extent by February first, that all except pupils in the 1B grade will be on full time schedules. The reduction in part-time has been possible by the occupation of new buildings and the use of portable structures.

—Fort Wayne, Ind. Entertainments during school hours have been limited to two each semester, by order of Supt. L. C. Ward. It was found that a number of the parent-teacher clubs have made it a practice to give plays, pageants and other forms of entertainment in which the children took part. School was dismissed at three o'clock in the afternoon and the pupils lost one hour's work.

—Chicago, Ill. Inadequate housing facilities have made it necessary to handle high school students on relay schedules. In Lake View High School, where the plan was first tried, classes begin at 8 A. M. and continue until 4:45 P. M., one class arriving as another is leaving. The plan makes possible the handling of thirty per cent more students.

—Louisville, Ky. The board contemplates the organization of safety guards in each of the schools to reduce the number of traffic accidents.

The plan provides for the assignment of older children as guards for the young and to take charge of the placing of traffic signals in the streets.

—Norfolk, Va. Intelligence tests for pupils in the second to the eighth grades will be conducted twice a year by order of the board of education. The tests will be used in determining a child's ability to master the different subjects.

—Los Angeles, Calif. To promote scientific education in the high schools, it has been ordered that special tests be given each student admitted to the several institutions. The tests will be used in determining the vocation most adaptable to the student's natural ability.

—Philadelphia, Pa. The offices of the department of compulsory education of the board have been moved to the administrative offices at Seventeenth and Pine Streets. All of the offices of the board are now housed under the same roof.

—Washington, D. C. A special study of the school situation has been ordered by the joint congressional committee. The study is expected to offer information about the present conditions with regard to both the building program and the causes for delay, about which there has been much complaint. The several schools of the city will be visited in order that first-hand information on overcrowding may be obtained.

DETERMINATION OF SPELLING VOCABULARY

(Concluded from Page 116)

the 126 words in the table were misspelled two or more times in more than one of the groups. The table shows the words misspelled two or more times in each of the groups, the frequency of misspelling for each word in each group, and the total number of times each word was misspelled in all the groups combined.

A comparatively small number of the words which were misspelled in each of the groups were misspelled more than once, and the majority of these two times only. Only about a dozen words show any marked frequency of misspelling. The essential conclusion is that there are relatively few of the tabulated words which have any special spelling difficulty.

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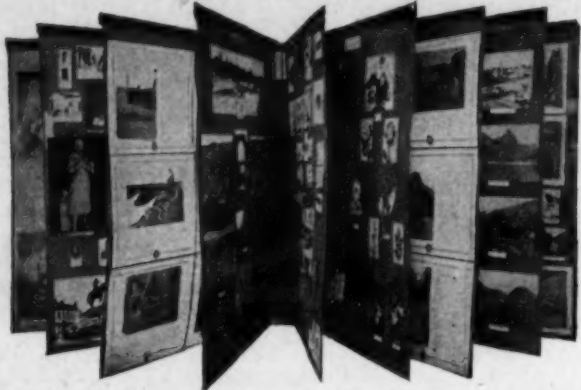
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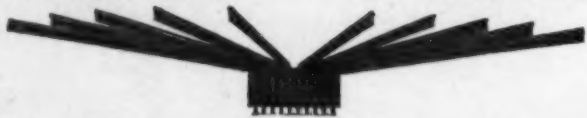
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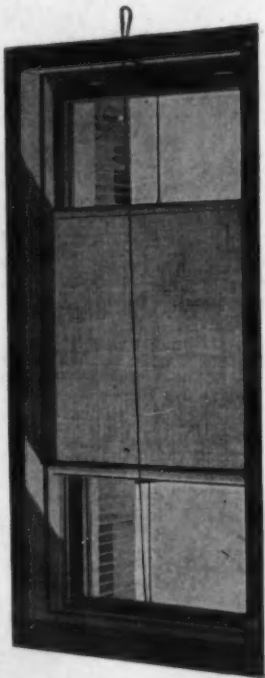
On a bracket only 8 inches long, there is hung over 85 square feet of display space. Sheets open to a wide angle, so that they can be seen from any point of classroom.

Send for Circular No. 1206.

UNIVERSAL FIXTURE CORPORATION

133 West 23rd St.
NEW YORK CITY.

USE THE DAYLIGHT KILL THE GLARE



Our Self-Balancing Adjustable fixtures are simple, Durable and Fool-Proof.

You Can Do It

AND

Do It Better

WITH THE

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EVER-LASTING-TRANSLUCENT

WINDOW SHADE

OUR NEW SHADE FOLDER IS
NOW READY. WRITE FOR IT.

THE ORIGINAL

WALGER AWNING COMPANY

GENERAL OFFICES AND FACTORY:

CHICAGO

ESTABLISHED
1905



ANOTHER IMPROVEMENT FOR SCHOOL ROOMS

THE ELGIN SCHOOL TABLE

for first and second grades makes for—

PRACTICABILITY—HEALTH

SANITATION—SOCIALIZED RECITATIONS

A MODERN IMPROVEMENT for primary rooms, accepted by superintendents and teachers and gaining rapid favor in replacing desks. Seats eight children with a drawer for each. Construction, workmanship and materials strictly high grade.



RINEHIMER BROS. MFG. CO.
ELGIN, ILL.

Master Woodworkers for 30 years



The
Picture
is the
Quick—
the
Intense
way of
Present-
ing
the
Truth

(C) K. V. Co.
HULLING RICE FOR BREAKFAST, LUZON, P. I.

Why pound away on definitions and memory work?
Let your pupils see and understand.
Show them the things studied.

The Keystone System for Visual Education furnishes the material. Six hundred stereographs and lantern slides, carefully chosen and classified by expert teachers, are available in this system. A Teachers' guide, completely indexed, points out daily uses.

Write for classroom demonstration.

KEYSTONE VIEW COMPANY, INC.

"Originators of Systematized Visual Education"

Meadville, Pa.

Keystone has purchased the stereoscopic and lantern slide department of Underwood and Underwood.

STANDARDIZED SCHOOL TABLETS

"Service and Satisfaction"

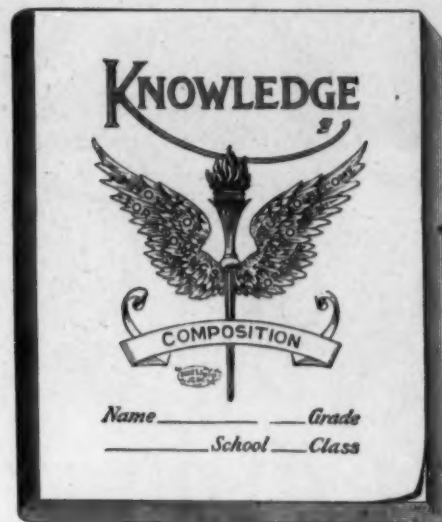
BLAIR'S KEYSTONE TABLETS



ADVANTAGES

- Quality and uniformity in the paper stock.
- Brightness and clearness in the ruling.
- Squareness and solidity in the binding.
- Attractiveness in the cover designs.
- Reasonableness in all the selling prices.

"PERFECT GOODS ONLY"



The attention of every teacher, Superintendent, and supply agent is called to the manifest advantage of the BLAIR TABLETS for all school purposes.

They are the product of one of America's model factories, made under the most sanitary conditions, of the best of material, by experienced skilled labor and ultra-modern machinery.

Guaranteed by the manufacturer and sold by all progressive dealers.

This is the Trademark of

Quality  Service
Look for it!

Yours for good tablets

J. C. BLAIR COMPANY

Huntingdon, Pennsylvania.

MODERN SCHOOL PLANTS IN THE SOUTH.

(Continued from Page 40)

the fact that ventilation is necessary for such a short period during the year, as windows can be open almost continually.

Profiting by this argument, artificial ventilation in the North High School, the most recent of the three, was omitted. Special ventilation was provided for lunch rooms, toilets, and auditoriums, and the heating plant installed so that the whole building or any part of it could be quickly warmed. Although there has not yet been sufficient opportunity to test the validity of this arrangement, it is believed that all requirements of the southern climate will be adequately met.

The Elementary Schools.

Dallas has a seven-year instead of an eight-year elementary school course, and prides herself on the fact that 95 per cent of her elementary school graduates enter the high school. Like a number of other progressive school people, the Superintendent and Board of Education have employed Centralization, viz., building larger and fewer plants, and the Work, Study, Play plan as methods whereby the expanded curriculum and the enriched facilities are made possible.

The new elementary school buildings include auditorium-lunch-rooms. About half the enrollment at the schools may be accommodated in these quarters at one time. With the work-study-play organization, the pupils use these auditorium-gymnasias in shifts. The size therefore, has been adjusted to suit the specific needs of each school. The accompanying first floor plan of the Mt. Auburn school shows the relation between the lunchroom kitchen and the auditorium. Folding partitions have been installed so two study rooms may also be secured at any time desired.

The classrooms vary in size. They are proportioned according to the needs of the different types of instruction and are of the following classification and dimension: normal size (22x

32), study size (22x45), and recitation size (22x25).

One-story vs. Two-story Plan for New Elementary School Buildings.

When the board of education and superintendent began their plans for the recent elementary school building program, some consideration was given to the one-story type of school. Accordingly, the architect was requested to make a comparison of two types of elementary schools in order to ascertain which type would most efficiently meet the requirements of the Dallas Plan of elementary school organization. One plan was to present a typical one-story and the other a typical two-story building. The requirements for the two schools were as follows:

- An expansible plan for ten to 22 or more classrooms with parallel accommodation in the auditorium, gymnasium, music, drawing, and handwork activities.
- Three sizes of classrooms, to serve the particular organizing device.
- A maximum-lighted auditorium (45x55) with stage (10x30) arranged in correlation with cafeteria kitchen.
- A suite of two administration rooms, a teachers' room and emergency sick room.
- Uniform construction on a typical site.
- Basements eliminated and the boiler room isolated.
- Maximum natural ventilation, lighting, safety and economy.

What Comparisons Revealed.

- Site comparisons revealed the fact that the one-story building would need a fifteen and one-half per cent larger site if the amount of play area per pupil was to equal that of the two-story plan.
- There were 570 sq. ft. more corridor space in the one-story building.
- In cubical content the one-story plan exceeded the two-story by 54,336 cu. ft.
- The cost of the one-story school was \$20,648 in excess of the two-story building.

Altogether, the above comparisons revealed the fact that the one-story school had no educational advantages, no lighting or safety advantages over the two-story plan, although its cost was more than eight per cent greater. The Mt. Auburn and the Austin elementary schools were planned as two-story structures after this comparison had been submitted to the Board of Education. Furthermore, the report determined the future policy of the Board relative to one and two-story buildings for Dallas.

Dallas Schools as Architectural Assets.

In studying the architecture of some of the business and public buildings in Dallas, one is impressed with the careful consideration of all the elements involved. The same architectural principles that apply to public buildings apply with equal strength to school buildings.

In Dallas, the exteriors of the school plants do not reveal a complicated plan nor are they overelaborated. The exteriors are but the evolutions of the interiors. Lacking that school-house appearance which we all dislike so much in the buildings of the past, and evidencing restraint by their practical simplicity and directness, they are given an architectural individuality which makes them stand out as the most thoroughly-planned and artistic structures in the community.

SPACE REQUIREMENTS FOR HOME ECONOMICS

(Continued from Page 43)

room of one of the three types shown in fig. 2, 3, and 4, we have the simplest form of a department as shown in Fig. 5. The two rooms together will require a floor area of 1421 square feet, or 1440 square feet, or 1479 square feet, according to the type of cooking room selected. Adding to this a dining room and a storage room, we increase the floor area by an additional 214 square feet. In the storage room provision is made for a refrigerator which may be filled with ice from the corridor, (See Fig. 6).



BRUCE'S SCHOOL ARCHITECTURE LIBRARY

A Reliable Reference and
Guide to Better Schoolhouse
Planning and Construction

*Descriptive literature and price
gladly furnished on request.*

The Bruce Publishing Company
201 MONTGOMERY BUILDING MILWAUKEE, WIS.

Enlarging the department still further by providing a small kitchen and a fitting room, we add 176 square feet of floor area. (See Fig. 7). The fitting room is intended to serve also as a reception room for guests invited to meals, and has on that account a built-in closet. In Fig. 8 a still larger department is shown. A bed room, a bath room and an ante-room to the dining room is added to the plan. This requires an additional 214 square feet. The total floor area as shown by Fig. 8 is 2025 square feet. Adding a laundry and using the unit kitchen plan as shown in Fig. 9 will mean a floor area of only 100 square feet more, or 2125 square feet.

The equipment selected for all of the rooms is standard and may be purchased from firms dealing in home economics equipment. In some instances, there are articles offered of slightly different dimensions, which if selected would require a slight change in the dimensions of the rooms.

The rooms which do not have outside windows are all small and not used to any great extent. As will be seen from the diagrams, glass is shown in the partitions of these rooms. This is placed high enough so as not to interfere with the use or the appearance of the room.

Since all rooms are also to have artificial illumination, there can be no valid criticism of this method of obtaining daylight. It is naturally undesirable in study or recitation rooms, laboratories or shops, but in rooms of the nature here shown, it is defensible on the ground of their limited usage and the economy of floor area which they make possible.

The general deduction from the facts here presented indicate that, if twenty pupils are to be given sufficient space at one time in a home economics department, the minimum floor area required will be approximately 1,500 square feet. It also indicates that 500 or 600 more square

feet of floor area will make possible a very satisfactory and complete addition of smaller rooms exceedingly important in teaching home duties and home care.

A COMPLETE GRAMMAR SCHOOL BUILDING.

(Concluded from Page 44)

The city voting booths are arranged at one end of the manual training department, and when used during election, folding doors are used in forming a separate room to house the same. The booths themselves are so constructed as to fold back flat against the wall, thus giving a paneled effect to the end of the room.

The first floor has four grade rooms, a teacher's room with toilet, kindergarten room with coat room and toilet room, and boys' and girls' toilet room.

The second floor is similar to the first floor, except that in addition to the four grade rooms, a domestic science room, principal's office and book room have been provided. Two grade rooms have been so provided that they may be thrown into one room if so desired. All grade rooms are provided with built-in ventilated wardrobes with teacher's closet and bookcases incorporated therein. It will be noticed a waste chute has been provided in the walls opening into the corridors at each floor. At the bottom of this chute in the basement a waste can is provided, which can be wheeled into the boiler rooms, where the waste can be burned.

Special attention is directed to the location of the various toilet rooms, showing how economically the installation of the plumbing may be obtained. All toilets are directly over each other on each floor. A pipe alley has been located in the rear of all fixtures, allowing all piping to be exposed therein. The toilet and shower stalls are of Tennessee marble, the closets and urinals are operated with automatic flushing valves, operated direct with the city water and pressure.

The floors and base of the entire building, excepting the floor of the gymnasium are of brown mastic, 3/16" in thickness, laid directly upon the concrete floors. The gymnasium has a clear white maple floor. The stairways are of steel with mastic treads. All window stools are of glazed brick, as are the wainscots of entrance halls.

The heating and ventilating is accomplished with direct vapor heat, combined with tempered washed air taken through the building from the roof. A recirculated system has been provided so that the air may be recirculated after first washing same. Temperature control has been used in connection with heating and ventilating apparatus. Exceptional economy is expected in the operation of this system, as it is considered a model installation.

An electrical clock and program system has been provided, with secondary clocks in each room. A manual-push-button-call system is also operated from the clock system.

While the building was constructed during the peak of building construction costs, it was estimated as low for that time amounting to only 35 cents per cubic foot. The total cost of the building is as follows:

General Contract	\$ 93,951.55
Heating & Ventilating	16,858.00
Plumbing	8,490.00
Temperature Regulation	2,400.00
Electric Wiring	3,211.00
Electric Fixtures	1,237.00
Clock System	815.00
Hardware	915.00

TOTAL\$127,877.55

BETTER HEALTH THROUGH VENTILATION.

(Continued from Page 52)

supplies just the right amount of good, pure air essential to the health of both the children and teachers.

(Concluded on Page 131)

STUDY THIS PICTURE



It illustrates the confusion always occurring in any school which is not equipped with a reliable electric time system. The class in the room has not yet been dismissed because the clock is slower than the others. The pupils standing in the hall waiting to get into this room were dismissed too soon. Result—confusion and waste of valuable time.

With a "Standard" electric time equipment, all this difficulty is avoided. No school can be operated efficiently without its aid. **It is an indispensable equipment for the modern school.**

Let us give you a suggestion with estimate on suitable equipment or furnish specifications to your architect.

Write today to the home office or nearest branch.

THE STANDARD ELECTRIC TIME COMPANY, Springfield, Mass.

261 Franklin Street
BOSTON

50 Church Street
NEW YORK

461 Market Street
SAN FRANCISCO

BRANCHES:
1361 Monadnock Bldg.
CHICAGO

448 Brown-Marx Bldg.,
BIRMINGHAM, ALA.

421 First Nat'l Bank Bldg.,
COLUMBUS

801 8th Street, S. E.
MINNEAPOLIS

Look—What Cleveland Did!

The City is building thirty schools this year—and starting with the immense John Adams High School—every one has had the Hahl Pneumatic Clock System installed.

Here They Are—

John Adams High School	75 Clocks
Rawlings Junior High School	60 Clocks
Lincoln High School	50 Clocks
Sunbeam School for Cripples	40 Clocks
Benj. Franklin Elementary School	30 Clocks
Normal School	40 Clocks
Glenville High School	70 Clocks
West Technical High School	60 Clocks

TIME SYSTEMS COMPANY

Manufacturers Hahl Pneumatic Clock Systems

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DETROIT

340 Leader News Bldg.
CLEVELAND

501 S. Huron St.
CHICAGO



Why It Pays To Buy Now

The School Man who buys his Clock System now is securing for his School an invaluable service; a service which cannot be estimated in dollars and cents.

The man who delays buying, hoping to secure lower prices, will undoubtedly find lower prices accompanied by lower taxes—and he will be missing all the advantages of this equipment in the meantime.

New Buildings should by all means have conduit and wiring for this equipment installed during their erection.

Write us today concerning your requirements.

LANDIS ENGINEERING & MFG. CO.



Waynesboro,
Pa.





Roosevelt Dam—By Earl Horter

Earl Horter calls them "fortunate accidents of light and tone"—delicious bits of pencil shading that are never thought out, but seem to just happen.

And the beauty of it is, they seem to "just happen" oftener with Dixon's Eldorado than with any other pencil!

**DIXON'S
ELDORADO**

"the master drawing pencil"

JOSEPH DIXON CRUCIBLE CO.
Jersey City New Jersey



Ordering Proper Crayons (Crayola)

Ordering proper crayons is another example of the value of team work and good understanding between supervisors and teachers. The pupils benefit from this cooperation.

Proper crayons imply proper color combinations, proper hardness and proper texture. These qualities are combined in "Crayola" Crayons. We make simple boxes for kindergarten use, larger assortment for the elementary grades, and a full color gamut for high schools, —all known as

Gold Medal Crayons for Every Use

Do you want an interesting brochure on blackboard drawing? It will give you ample suggestions for conference material. Write to

BINNEY & SMITH COMPANY

81-83 Fulton St.,

New York City



EBERHARD FABER SCHOOL PENCILS PENHOLDERS ERASERS

Write for Illustrated Circular

Address us at

37 Greenpoint Ave., Brooklyn, N. Y.

EBERHARD FABER

"The Oldest Pencil Factory in America"

NEW YORK



PALMER'S CAN'T SPREAD ERASER

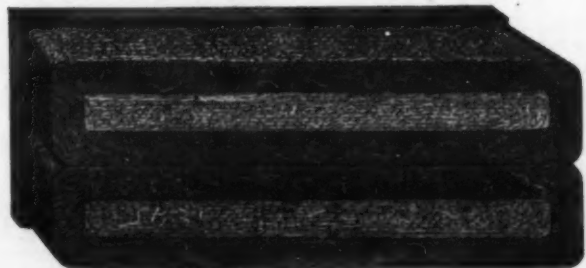


As its name would indicate—the Palmer Eraser simply cannot spread, because of its peculiar, patented design and construction.

It gathers the dust and holds it—yet may be cleaned as readily as any other eraser.

It is noiseless and dustless—has a soft, open cleaning surface, and will not mar nor scratch the blackboard.

The high quality of felt used, and the patented construction (Patented Oct. 26, 1915), insure unusually satisfactory wear and service.



Palmer's
MADE IN U.S.A.

PALMER CO.

Palmer's
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Manufacturers for the Jobber
MILWAUKEE, U. S. A.

Prang

"CRAYONEX"

THE "OLD FAITHFUL" CRAYONS

THE AMERICAN CRAYON COMPANY

SANDUSKY - OHIO ESTABLISHED 1835 NEW YORK

(Concluded from Page 128)

How much better it is to know that the system in your school is all that could be desired, that it is doing the work and producing results, rather than have the fear that in saving the few dollars which such equipment costs, discomfort and ill health result. The school ventilating question today is a far bigger and more important one than ever before. It is taking its place as a subject which cannot be profitably overlooked, and the quicker it is correctly solved in each school district the quicker will health reports take on a more encouraging showing.

THE CLINTONVILLE HIGH SCHOOL BUILDING.

(Concluded from Page 57)

Inter-Communicating	
Telephone	362.38
Lighting Fixtures	2,601.98
Miscellaneous	310.04
	<hr/>
	\$148,792.70
Sidewalk and filling in ground.	
Total	1,386.63
Equipment.	
Auditorium	\$ 3,062.31
Gymnasium	1,161.68
Classrooms	1,841.91
Manual Training	1,908.74
Domestic Arts	1,214.66
Science	2,236.56
Library and Office	462.90
Miscellaneous	244.70
	<hr/>
	12,133.46
*Total Cost to date	<hr/>
	\$162,312.79

These costs cannot be said to include contractors' profits, in so much as the building as a

*NOTE—The matter of paying the general contractors additional money is still under consideration.

whole was erected without a profit to any contractor, in fact the general contractors completed their work at a considerable loss to them. The figures moreover represent a cost of approximately \$10.50 per square foot, or 21.7 cents per cubic foot of building, costs no doubt considerably less than the present day costs of building of a similar type.

MEANINGFUL HIGH SCHOOL RECORDS.

(Concluded from Page 98)

general. The accompanying form shows how this relationship is graphically represented.

The reverse side of our report card contains brief statements concerning the meaning of the marks used and the crediting values of these marks respectively. It will be noted that we have a system of weighted crediting in which students are credited in proportion to individual achievement. Not only *excellency of work* but *extra scope of work* and *extraordinary type of work* are required for the super-credit marks. In such a system¹ marks are truly meaningful: they are much more than mere ornaments on paper.

Another example of meaningful records is the diploma. In addition to the usual form setting forth that the student has completed the four year course of study is the following data showing the departments in which the student has worked, the number of credits received in each department, the average standing maintained by the student, the number of recommended credits earned, and the important extra activities having an educational value. The

credits granted, however, for extra activities which are not included in the regular work of the school do not shorten the time for graduation. We feel, nevertheless, that the diplomas should be differentiated. Our students, too, are coming to recognize the fact that the diploma received is no better than the type and extent of work accomplished. The super-credit graduates especially appreciate their diplomas knowing that these are the best sort of recommendations they can carry away with them.

The following form is a part of the regular diploma:

HIGH SCHOOL RECORD.

Departments	Number of Credits
English
History and Social Science.....
Mathematics
Physical Science
Biological Science
Domestic Science and Domestic Art....
Ancient Language
Modern Language
Commercial Studies
Shop Work and Mechanical Drawing..
Graphic Art
Dramatics
Music
Physical Education
Extra Activities
Number of Recommended Credits.....
Average Standing (All Subjects).....

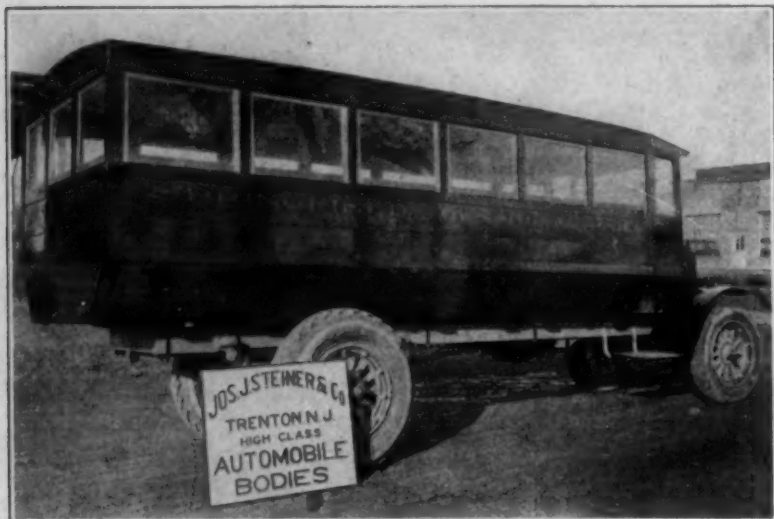
Marks Used and Credit Values.

- 1—Valued 13 Credits.
- 1—Valued 12 Credits.
- 1—Valued 11 Credits.
- 2—Valued 10 Credits.
- 5—Valued 9 Credits.
- 3—Valued 9 Credits.
- 4—Valued 8 Credits.
- 10 Credits are equal to one full year unit.

¹For an account of the administration of this system see an article by the writer in the September, 1920, issue of the Journal of Educational Research entitled "Standardizing Procedure in a Combination System of Supervised Study, Varying Scope of Work, and Weighted Credit."

"STEINERBUS"

For Efficient And Economical Transportation



"Steinerbus" bodies are correct in design, durable in construction and are the most logical for efficient and economical transportation. They are custom made and can be built to meet every requirement. Furnished with either rear or side doors, or both, as desired.

The "Steinerbus" body illustrated, is 17 feet long and 73 inches wide, has two aisles and three long seats which can easily accommodate 45 children. The large capacity of "Steinerbus" bodies is one of their big features in addition to being well built and dependable, insuring long service.

Write us for particulars. Prompt deliveries guaranteed.

JOS. J. STEINER COMPANY

TRENTON,

NEW JERSEY

Common Sense Inkwells



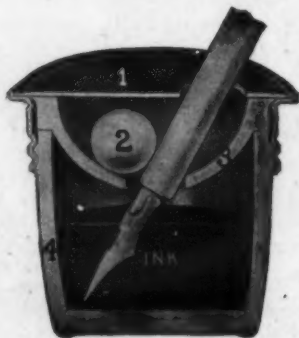
with large opening for pen. Experience has proved that no inkwell is perfectly air tight except one with a cork. Made in three sizes to fit holes $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{7}{8}$ inch. We furnish corks with Hard Rubber Caps, Plain Corks or Rubber Corks.

All Orders Filled Promptly on these Inkwells.

Self Closing Inkwells

A perfect inkwell for school desks. Made of glass with a nickel zinc top. Always closed and practically air tight and dust proof.

Write for Circular, Prices, and Samples.



SQUIRES INKWELL CO.

713 Penn Ave., Pittsburgh, Pa.

The Problem of Safe and Sanitary Heating and Ventilation of School Wagons is Solved.



THE MILLER VEHICLE HEATER Does the Work

The above cut shows the Miller Vehicle Heater in use on a modern school wagon under actual winter conditions.

No stove to overturn, no gas or oil to explode, no smoke or poisonous gas to endure. Simply a hot air register in the floor flooding the whole inside of the wagon with warm, pure air drawn from outside.

Disease is now sweeping over the country endangering the lives of young and old alike. The epidemic of Spanish Influenza finds an inviting field for its deadly work in crowds, in damp, cold atmosphere, in poor ventilation.

The Miller Vehicle Heater, like mingled sunshine and fresh air, dispels dampness and disease, affords warmth and comfort, and renders safe and sanitary the journey to and from school.

Every parent has a moral right to demand and it is the sacred duty of school officers to supply Miller Vehicle Heaters for school wagons.

We manufacture and sell Heaters only and sell to wagon manufacturers, dealers and school authorities.

Send for Prices.

MILLER VEHICLE HEATER CO.

Crawfordsville, Ind., U. S. A.



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